DALM XVII International Symposium
Diabetes, Obesity & the Metabolic Syndrome

FINAL PROGRAM
AND
ABSTRACT BOOK
ADDRESS FROM THE CHAIRPERSONS

Dear Colleague:

We are delighted to welcome you to Doha, Qatar for the XVII International DALM Symposium on Diabetes, Obesity, and the Metabolic Syndrome.

For the first time since the inception of the DALM symposia in 1960, the conference will take place in Doha, Qatar, instead of in the United States or Italy.

DALM 2011 is hosted by the Weill Cornell Medical College in Qatar, the first medical school in the country; the Qatar Foundation, a private non-profit organization established by His Highness, the Emir of the State of Qatar; and the Giovanni Lorenzini Medical Foundation, a non-profit organization based in Milan, Italy and Houston, Texas.

Together we are working to build biomedical research capacity in Qatar and to address significant public health challenges—obesity, diabetes, and cardiovascular disease foremost among them—currently facing the country and the region.

An energy-rich nation seeking to develop a knowledge-based economy, Qatar is poised to become a leader in education, research, and technology development within the Middle East.

At the same time, however, rapid economic growth and major shifts in lifestyle patterns have led to extremely high rates of diabetes, obesity, and metabolic syndrome in Qatar and many other nations in the Middle East and North Africa region.

Over the next few days, a faculty that includes internationally renowned clinicians and investigators will discuss the latest findings in the field, as well as cutting-edge strategies for prevention, diagnosis, and treatment. We hope that you find the symposium informative and stimulating and that you enjoy your stay in Qatar.

Sincerely,

Antonio M. Gotto, Jr.
Weill Cornell Medical College
New York, NY

Rodolfo Paoletti
Giovanni Lorenzini Medical Foundation
Milan, Italy and Houston, TX

Javaid Sheikh
Weill Cornell Medical College in Qatar
Doha, Qatar
Chairpersons: Antonio M. Gooto, Jr. (USA) – Rodolfo Paololetti (Italy) – Javaid Sheikh (Qatar)

International Program Committee: CM Ballantyne (USA) – AL Catapano (Italy) –
RG Crystal (USA) – M Davidson (USA) – SM Sadikot (India)

Local Planning Committee: A Al-Ani (Qatar) – A Al Hamaq (Qatar) – JM Al Suwaidi (Qatar) –
AA Gehani (Qatar) – AA Jayyousi (Qatar) – MA Zirie (Qatar)

INTERNATIONAL ADVISORY BOARD
A Adlouni (Morocco) – OS Al-Attas (Saudi Arabia) – BJ Ansell (USA) – G Assmann (Germany) –
L Badimon (Spain) – PJ Barter (Australia) – J Betteridge (UK) – AJB Brady (UK) – WV Brown (USA) –
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(Italy) – RH Eckel (USA) – M Farnier (France) – JC Fruchart (France) – HN Ginsberg (USA) –
H Greten (Germany) – SM Grundy (USA) – P Hildebrandt (Denmark) – CR Kahn (USA) – T Kita
(Japan) – W Koenig (Germany) – E Leitersdorf (USA) – G Mancia (Italy) – N Marx (Germany) –
B Masi (USA) – Y Matsuzawa (Japan) – FX Pi-Sunyer (USA) – PM Ridker (USA) – F Rubino (USA) –
N Sarrafzadegan (Iran) – EJ Schafer (USA) – PK Shah (USA) – CR Sirtori (Italy) – A Sussekov
(Russia) – T Tall (USA) – MR Taskinen (Finland) – AA Tavassoli (Iran) – L Tokgözoglu (Turkey) –
E Tremoli (Italy) – J Tuomilehto (Finland) – TST Wiling (Philippines) – L Van Gaal (Belgium) –
JL Zamorano (Spain) – D Zhao (PR China)

SCIENTIFIC-ORGANIZING SECRETARIATS:

DALM 2011
Giovanni Lorenzini
Medical Foundation
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Houston, TX 77030, USA
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DALM 2011
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Medical Science Foundation
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Phone: +39 02 29006267
Fax: +39 02 29007018
Email: dalm@lorenzinfoundation.org

www.dalm2011qatar.org
IN GRATEFUL APPRECIATION

The Organizing Committee gratefully acknowledges generous support from the following:

Qatar Foundation

KOWA

New York Presbyterian

abcam

Mercodia
SECRETARIAT AND REGISTRATION DESK

The following services are available at the Secretariat and Registration Desk:

Registration
(pre-registrations and on-site registrations)

Secretariat
Invited Speakers Desk
CME Credits
Information
Lost & Found

Open Hours

Monday, March 14 | 2:00 pm – 7:30 pm
Tuesday, March 15 | 7:30 am – 6:30 pm
Wednesday, March 16 | 7:30 am – 5:30 pm

REGISTRATION

Only registered participants may attend the Scientific Sessions and Social Events offered by the Symposium. The late enrollment fee (from March 1 and on-site) will be charged if the registration form was received without payment.

The registration fees for the Symposium from March 1 and on-site are as follows (all amounts given in US Dollars):

- Physicians and Scientists: US $ 630
- Medical Students/Residents: US $ 300
- WCMC-Q Medical Students: US $ 0
- Nurses, dietitians, psychologists: US $ 420
- HMC Nurses: US $ 50

* Medical Student/Resident and Nurse/Dietitian/Psychologist registration fees will be granted only to those who document their positions by providing a copy of their license/student ID or an official letter from the head of their Department or Institution.

All registered participants are entitled to:

- Attend all Scientific Sessions and Satellite Symposium
- Attend the Opening Ceremony
- Attend the Exhibits and the Poster Viewing and Discussions
- Receive Final Program and Abstract Book
- Coffee Breaks and Lunches (March 15 and 16)

SATELLITE SYMPOSIUM

The lunchtime Satellite Symposium on March 15 is open to all participants. Seating is limited and determined on a first-come, first-served basis.

PRESS REGISTRATION

Working press from newspapers, magazines, radio, television, and medical publications will receive complimentary registration, provided that they submit a copy of their press credentials along with the registration form.

PRIVACY LAW

(For Italian Participants)

Personal data will be handled exclusively by Fondazione Giovanni Lorenzini Medical Science Foundation according to the Italian Law 675/96 and law decree 196/2003.

CERTIFICATE OF ATTENDANCE

A Certificate of Attendance is available, upon request, from the Registration Desk at the end of the Symposium.

EMERGENCIES

To prepare for the unlikely event of a fire or other emergency requiring rapid departure, participants are encouraged to locate all exit doors and routes upon entering any room. In the case of an emergency requiring fire, ambulance, or police assistance, dial 999 on your cell phone.

LANGUAGE

The working language of the Symposium is English. Simultaneous translation in Arabic will be provided.
INTERNET AND COMPUTER ACCESS

Wireless internet access is available in the Al Wosail and Al Mukhtasar ballrooms. A computer kiosk is also available in the Al Wosail foyer.

BADGES

The official badge must be worn for admission to all Scientific Sessions and other activities of the Symposium.

SYMPOSIUM ATTIRE

Business attire is welcome for the Symposium.

COFFEE BREAKS

Early-Morning, Mid-Morning, and Mid-Afternoon Coffee Breaks will be offered to all registered participants in the foyer outside the Al Wosail ballroom on March 15 and 16.

LUNCH

Lunches will be offered to all registered participants in the Al Mukhtasar ballroom on March 15 and 16. Lunch will also be served during the Satellite Symposium on March 15 in the Al Wosail ballroom.

DINNER

Dinners are on your own. A list of nearby restaurants is provided in your registration materials.

EXHIBITS

During the Symposium, exhibits of pharmaceutical and medical technology suppliers and of academic/medical institutions in Qatar will be held in the foyer outside the Al Wosail ballroom. See page 17-18 for a list of exhibitors and the open and close times for each day.

SLIDE LIBRARY

A Slide Library of key selected presentations will be available after the Symposium at: www.dalm2011qatar.org and www.lorenzinfoundation.org

SYMPOSIUM WEBSITE

The home page for the DALM 2011 Symposium is located at: www.dalm2011qatar.org

MESSAGES, MAIL, AND FAX

During the Symposium, correspondence and messages may be transmitted to Symposium participants who are guests at the hotel as follows:

[Insert Symposium participant’s name here] -- GUEST
c/o Ritz-Carlton, Doha
P.O. Box 23400
Doha, Qatar
Phone: +974 4484-8000
Fax: +974 4484-8484

PROGRAM INFORMATION AND MESSAGE BOARD

A Program Information/Message Board is located in the registration area in the foyer outside the Al Wosail ballroom, where any last-minute program changes and other essential information will be posted. Participants are kindly asked to check this board frequently.

PERSONAL BELONGINGS

Please exercise adequate precautionary measures to safeguard your personal possessions. The Hotel, the Scientific-Organizing Secretariat, the Giovanni Lorenzini Medical Foundation, and the Weill Cornell Medical College in Qatar are not responsible for loss of any items. Safety deposit boxes are available at the Hotel’s Front Desk and are also located in individual guest rooms.

PERSONAL INSURANCE COVERAGE

Registration for the Symposium implies that the delegate agrees that the Scientific-Organizing Secretariat, the Giovanni Lorenzini Medical Foundation, and the Weill Cornell Medical College in Qatar do not assume any liability or responsibility whatsoever. Symposium delegates are requested to make their own arrangements for medical, travel, and personal insurance.

CELLULAR PHONES, BEEPERS, AND ELECTRONIC DEVICES

In consideration of fellow participants, it is requested that all cell phones, pagers, and other electronic devices be turned off or set to silent mode during all Scientific Sessions to avoid disruption.

CANCELLATION OF THE MEETING

The Giovanni Lorenzini Medical Foundation/Fondazione Giovanni Lorenzini Medical Science Foundation and the Weill Cornell Medical College in Qatar reserve the right, in their sole discretion, to unilaterally terminate the Symposium. In the unlikely event that the XVII International Symposium on Drugs Affecting Lipid Metabolism: Diabetes, Obesity, and the Metabolic Syndrome is abbreviated or cancelled for any reason whatsoever, the registrant and/or any funding/sponsoring organization hereby agrees to waive any claim against the Giovanni Lorenzini Medical Foundation/Fondazione Giovanni Lorenzini Medical Science Foundation and the Weill Cornell Medical College in Qatar for damages or compensation including, but not limited to, fees for registration, housing, airfare, and incidental charges.
HOTEL ACCESSIBILITY
All hotel areas are wheelchair accessible, either by elevator or ramp. Complimentary valet parking is available.

TOURS, SIGHTSEEING, AND RESTAURANT
The Hotel's Concierge Desk in the Hotel Lobby can assist you with planning and making reservations for your free-time activities. A list of nearby restaurants is provided in your registration materials. The Concierge Desk can be contacted at Ext. 8119 or 8118 on a Hotel house phone, or by calling +974 4484-8118.

HOURS OF WORK / BUSINESS
The workweek in Qatar typically runs from Sunday to Thursday, with Friday (holy day for Muslims) and Saturday off. Government offices are open between 6 am–2 pm. Commercial offices are generally open from 7:30 am–12:00 pm and from 3:30 pm–7:30 pm, although specific hours can vary. Major shopping malls are usually open from 10:00 am–10:00 pm, but the majority are closed Friday mornings.

LANGUAGE
The national language of Qatar is Arabic. English is also commonly spoken in Doha.

ATTIRE
Cotton or lightweight clothing is suitable for daywear. Proper evening attire is recommended when dining in restaurants. Skirts or shorts above the knee should be avoided, as should sleeveless tops that expose the shoulders or upper arms. Very tight or revealing clothing should also be avoided.

PHONE
The country code for Qatar is 974, and there are no city codes. International calls are made by first dialing 00. For local directory assistance, call 180.

ELECTRICITY
The electrical supply operates at 220-240 volts and 50 Hz. There are two types of electrical outlets: Type G (British, fits 3 rectangular pins) and Type D (Old British, fits 3 round pins). Adapters are available in most supermarkets and corner stores.

GRATUITIES
An average restaurant tip is 10%, although some restaurants automatically add a 10% service charge to the bill. Tipping of bellmen, hotel doormen, tour guides, etc. is done at an individual's discretion. Tipping is customary for taxis.
**Oral Presentations**

Audiovisual
All audiovisual needs should have been pre-arranged with the Scientific-Organizing Secretariat. For on-site assistance, please contact the Secretariat Desk.

PowerPoint presentations will be accommodated with an LCD/data projection system. The lecture room will be networked into a central communications system that will electronically "deliver" each speaker's computer-based presentation. Speakers should scan their presentations for viruses, preview their slide files, and download their presentation onto the networked system in the Speaker Ready Room ( Fateh Al-Khair) the day before their presentation, but no later than 2 hours before the start of their session.

**Speaker Ready Room**
Speakers should report to the Speaker Ready Room the day before their presentation is scheduled, but no later than 2 hours before the start of their session. The staff in the Speaker Ready Room will assist speakers with finalizing their visuals and downloading their presentations.

The Speaker Ready Room is located in the Fateh Al-Khair conference room. An audiovisual technician is available to assist oral presenters during the following hours:

- **Monday, March 14**: 3:00 pm – 8:00 pm
- **Tuesday, March 15**: 8:30 am – 4:30 pm

**Posters**

**Poster Numbers and Location**
All Posters will be displayed in the Al Wosail foyer. The poster board number corresponding to the poster abstract listing in the Final Program will be posted on the top of each poster board. Authors must use the poster board with their abstract number.

**Poster Mounting**
Poster authors must mount their poster presentations according to the following schedule:

- **Monday, March 14**: 2:00 pm – 5:00 pm
- **Tuesday, March 15**: 7:30 am – 8:30 pm
- **Posters Display**
Poster Display is for the duration of the Symposium. Poster Displays will be open during the following hours in the foyer outside the Al Wosail ballroom:

- **Monday, March 14**: 5:00 pm – 7:00 pm
- **Tuesday, March 15**: 8:30 am – 6:20 pm
- **Wednesday, March 16**: 8:30 am – 5:25 pm

**Poster Assistance**
A Poster Assistant will be present to provide any information or help the author may need during Poster Mounting.

**Poster Discussions and Author Attendance**
At least one author per Poster Presentation is required to attend his or her Poster Discussion during the scheduled Poster Discussion times:

- **Poster Discussion Group A (#40-92)**: 10:15 am – 10:45 am | 4:00 pm – 4:30 pm
- **Poster Discussion Group B (#93-144)**: 1:00 pm – 2:00 pm

Facilities for slide projection are not available at the site of the Poster Presentation. Photocopies may be made from the reduced image of the Poster, and any additional materials may be distributed by the author(s) at the Poster Presentation site.

**Poster Removal**
All posters must be completely removed at the end of the scientific sessions on Wednesday, March 16, between 5:30 pm and 6:30 pm. The Organizers are not responsible for any items, including Posters, left in the hotel after this time.
**EXHIBITS INFORMATION**

**Scientific Exhibits**

Exhibits of pharmaceutical and medical technology suppliers and of academic/medical institutions in Qatar will be held in the foyer outside the Al Wosail ballroom.

The Exhibits are open during the following hours:

- **Monday, March 14** | 2:00 pm – 6:00 pm
- **Tuesday, March 15** | 8:30 am – 6:00 pm
- **Wednesday, March 16** | 8:30 am – 6:00 pm

**LIST OF EXHIBITORS**

**Abcam**

All the best for Cardiovascular research at Abcam. Abcam is able to deliver a comprehensive portfolio of all the very best and most up to date cardiovascular antibodies and related products. A leading online provider of primary and secondary antibodies to researchers worldwide, Abcam’s diverse catalog of over 68,000 antibodies includes cutting edge tools for neuroscience, chromatin-nuclear signaling, stem cells, immunology and cancer as well as cardio research. We also provide proteins, ELISA, lysates and slides.

www.abcam.com/cardio

**Giovanni Lorenzini Medical Science Foundation**

The mission of the Giovanni Lorenzini Medical Foundation is to transfer the most recent developments and results in experimental science to clinical and applied research, to be used to update and inform the medical community worldwide with the result of enhancing patient care. The Lorenzini Foundation is located in Milan, Italy and Houston, TX, USA.

Please refer to the Foundation website for more information: www.lorenzinifoundation.org

**Mercodia**

Mercodia AB is a Swedish biotech company focusing on the development of immunoassays for research within the field of metabolic disorders. Our assays are applicable to both animal and human models and are used for research ranging from basic scientific studies to large pre-clinical and clinical phase trials.

The company was founded in 1991 and is today a world-leading supplier of products to all major international markets. More than ninety percent of our production is exported from our facilities in Uppsala to approximately 100 different countries around the world.

Mercodia provides a professional scientific support system by collaborating with customers and institutions worldwide to develop novel applications for existing products and unique diagnostics for emerging markets.

**NewYork-Presbyterian Hospital**

NewYork-Presbyterian Hospital is one of the most comprehensive university hospitals in the world, with leading specialists in every field of medicine. We are composed of two renowned medical centers, NewYork-Presbyterian Hospital/Columbia University Medical Center and NewYork-Presbyterian Hospital/Weill Cornell Medical Center, and affiliated with two Ivy League medical institutions, Columbia University College of Physicians and Surgeons and Weill Cornell Medical College.

**Hamad Medical Corporation**

Hamad Medical Corporation is the premier public healthcare provider in Doha, Qatar. It comprises a network of specialized hospitals—Hamad General Hospital, Rumailah Hospital, Women’s Hospital, Al Amal Hospital (specializing in cancer treatment)— and Al Khor Hospital (a local community hospital) — with more hospitals under development. HMC is mandated to pursue excellence in Health, Education and Research to provide high quality care to all patients.

**Kowa**

Kowa Company, Ltd. has grown into a global company on several business fields of pharmaceutical products, optical devices, textiles, machinery and construction materials. Our pharmaceutical focus is primarily on the therapeutic area of lifestyle-related diseases, seeking novel innovative drugs through the R&D activities of drug discovery, formulation development and neo-generics.
Qatar Diabetes Association
The Qatar Diabetes Association was established by His Highness the Emir Sheikh Hamad Bin Khalifa Al-Thani. Overseen by Her Highness Sheikha Mozah Bint Nasser al-Missned, the association provides useful and up to date information that will help patients and their families to understand the reality of diabetes, prevention strategies, treatment options and lifestyle suggestions. Components of the organization include a scientific committee, education center, volunteer center, youth camps, events and conferences.

Qatar Foundation
Qatar Foundation is a private, non-profit organization established by His Highness the Emir Sheikh Hamad Bin Khalifa Al-Thani to help Qatar become an advanced knowledge-based society. Chaired by Her Highness Sheikha Mozah Bint Nasser al-Missned, it supports education, research and community development to transform Qatar, improving the standard of living for all its people while preserving its culture and traditions.

Supreme Council of Health
Under the guidance of His Highness the Emir Sheikh Hamad Bin Khalifa Al-Thani, the Supreme Council of Health was established to oversee health care reform in Qatar. It relies on evidence-based policies that seek to improve the health and wellbeing of individuals, their families and the community at large. Change is continuously measured against established objectives to be certain progress is being achieved.

CONTINUING MEDICAL EDUCATION (CME)

CME Course Director
Javaid I. Sheikh, MD, Weill Cornell Medical College in Qatar (Doha, Qatar)

Statement of Need
Rapid economic growth, accompanied by major shifts in lifestyle patterns, has increased the global burden of diabetes and other cardiometabolic disorders, particularly within countries in the Middle East. According to the International Diabetes Federation, six countries in the Middle East and North Africa region rank among the world’s 10 highest for diabetes prevalence: Bahrain, Egypt, Kuwait, Oman, Saudi Arabia, and the United Arab Emirates. In Qatar, the prevalence of diabetes is 15.4%, with 34.6% of adult men and 45.3% of adult women estimated to be obese by the International Obesity Taskforce. This international symposium will facilitate open discussion and peer-to-peer dialogue among health care providers and experts from both the Middle East and the larger global community, in order to address the mounting public health challenges of diabetes, obesity, and related cardiometabolic disorders. It will update practitioners and health organization representatives on the latest advances in prevention and treatment, with the aim of furthering the development of regionally and nationally specific programs for risk factor education and control. The conference will additionally provide a forum for cross-cultural scientific exchange in order to enhance our understanding of the genetic, ethnic, environmental, epidemiological, and sociocultural determinants of metabolic disease.

Target Audience
This symposium is designed for a multidisciplinary audience, particularly physicians and health care practitioners in the fields of cardiology, diabetology, endocrinology, epidemiology, family medicine, genetic medicine, geriatrics, internal medicine, lipidology, pediatrics, primary care, and public health. Basic scientists, clinical researchers, and representatives from health regulatory agencies and industry will also benefit from the scientific, clinical, and economic discussions during the conference.

Course Goals and Objectives
At the conclusion of this activity, participants should be able to:

1- Discuss the benefits of lifestyle and dietary modifications with patients with or at risk for diabetes, obesity, and the metabolic syndrome, with an increased awareness of issues surrounding compliance and adherence;

2- Recognize, diagnose, and treat lipid abnormalities in patients, in accordance with current guidelines regarding dietary, lifestyle, and pharmaceutical therapy;

3- Evaluate the efficacy, safety, and tolerability of various drugs for the treatment of diabetes, obesity, and cardiometabolic risk factors, in order to implement appropriately targeted treatment plans;

4- Assess international guidelines for the diagnosis, prevention, and treatment of diabetes, obesity, and metabolic syndrome in terms of their applicability within countries in the Middle East;

5- Discuss the economic and public health challenges surrounding diabetes, obesity, and metabolic syndrome in the Middle East, with the goal of developing country-specific strategies for prevention and treatment;

6- Apply current guidelines regarding the identification of patients at increased risk for cardiovascular disease and diabetes to clinical practice, for populations including women, children, and the elderly;

7- Discuss ongoing research on novel risk factors, emerging biomarkers, and genetic testing in terms of its future applicability in the Middle East.

European Accreditation
European Accreditation is granted by the EACCME in order to allow participants who attend the above-mentioned activity to validate their credits in their own country.

Accreditation Statement
The Giovanni Lorenzini Medical Foundation is accredited by the European Accreditation Council for Continuing Medical Education (EACCME) to provide the following CME activity for medical specialists. The EACCME is an institution of the European Union of Medical Specialists (UEMS), www.uems.net.

The ‘XVII International DALM Symposium on Diabetes, Obesity, and the Metabolic Syndrome’ is designated for a maximum of 13 hours of European external CME credits. Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

EACCME credits
Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity. The EACCME credit system is based on 1 ECMEC per hour with a maximum of 3 ECMECs for half a day and 6 ECMECs for a full-day event.

Hamad Medical Corporation CME
This Symposium is also accredited for 15 CME points through the Hamad Medical Corporation in Qatar. These credits are recognized by the Royal College of Physicians and Surgeons of Canada.

Participants interested in receiving CME credits should inquire about the necessary application forms and questionnaires at the registration desk.
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### SCIENTIFIC PROGRAM

The Presenting Author is in bold face type.

Abstract # Ref: refers to abstracts listed following the Scientific Program schedule.

**ADMISSION TO THE SCIENTIFIC SESSIONS IS RESERVED ONLY FOR PARTICIPANTS WEARING THE SYMPOSIUM BADGE**

All Scientific Sessions are located in the Al Wosail ballroom.

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### 5:00 pm – 7:00 pm   MONDAY, MARCH 14

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### SESSION 1: OPENING CEREMONY

** Chairs:**  
Javaid I. Sheikh (Doha, Qatar)  
Antonio M. Gotto, Jr. (New York, NY, USA)  
Rodolfo Paoletti (Milan, Italy)

**Welcome and Opening Remarks**

5:00 pm – 6:00 pm  
Javaid I. Sheikh  
Weill Cornell Medical College in Qatar (Doha, Qatar)

Rodolfo Paoletti  
Giovanni Lorenzini Medical Foundation (Milan, Italy)

Antonio M. Gotto, Jr.  
Weill Cornell Medical College (New York, NY, USA)

**Keynote Lectures**

6:00 pm – 6:30 pm  
A GLOBAL PERSPECTIVE ON CVD, DIABETES, AND OBESITY  
Thomas A. Gaziano (Boston, MA, USA)  

6:30 pm – 7:00 pm  
REGIONAL AND ETHNIC PRONENESS TO DIABETES, OBESITY, AND THE METABOLIC SYNDROME  
Mahmoud A. Zirie (Doha, Qatar)

7:00 pm  
End of the session

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### 8:30 am – 12:20 pm   TUESDAY, MARCH 15

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### SESSION 2: OVERWEIGHT AND OBESITY

**Keynote Lecture**

Chair: Ronald G. Crystal (New York, NY, USA)

8:30 am – 8:55 am  
LEPTIN AND THE BIOLOGIC BASIS OF OBESITY  
Jeffrey M. Friedman (New York, NY, USA)

**Roundtable**

THE MANAGEMENT OF THE OBESE PATIENT  
Moderators:  
Maryam Ebrahim Al Harmasi Al Hajeri (East Riffa, Bahrain)  
Barbara V. Howard (Washington, DC, USA)

9:00 am – 9:15 am  
THE DYSLIPIDEMIA OF OBESITY  
Barbara V. Howard (Washington, DC, USA)

9:15 am – 9:30 am  
THE HYPERTENSIVE OBESE PATIENT  
Luc F. Van Gaal, I. Mertens, A. Verrijken (Antwerp, Belgium)

9:30 am – 9:45 am  
COGNITIVE FUNCTION IN NORMAL OLDER ADULTS: EFFECTS OF OBESITY, GENETICS, AND SLEEP APNEA  
Jerome Yesavage (Stanford, CA, USA)

9:45 am – 10:15 am  
PANEL DISCUSSION  
Nadia N. Ghannam (Jeddah, Saudi Arabia)  
Masoud Y. Al-Maskari (Muscat, Oman)  
Ahmed A.R. Muhamed Al-Ani (Doha, Qatar)

10:15 am – 10:45 am  
Coffee Break

**Keynote Lecture**

Chair: M. John Chapman (Paris, France)

10:45 am – 11:10 am  
PERSONALIZED CARDIOVASCULAR MEDICINE  
Gerd Assmann (Muenster, Germany)
KOWA SATELLITE SYMPOSIUM

PITAVASTATIN: A NEW STATIN AND ITS ROLE IN METABOLIC SYNDROME

Chair: Antonio M. Gotto, Jr. (New York, NY, USA)

12:30 pm – 12:50 pm METABOLIC SYNDROME: EPIDEMIOLOGY AND CHALLENGES
Antonio M. Gotto, Jr. (New York, NY, USA)

12:50 pm – 1:10 pm METABOLIC SYNDROME: LIPID MANAGEMENT IN THE CLINIC
Ibrahim S. Salti (Beirut, Lebanon)

1:10 pm – 1:30 pm PITAVASTATIN: FROM PHARMACOLOGY TO CLINICAL PRACTICE
Michel Farnier (Dijon, France)

1:30 pm – 1:50 pm STATINS IN THE TREATMENT OF DIABETES AND METABOLIC SYNDROME
Koutaro Yokote (Chiba, Japan)

1:50 pm – 2:00 pm CLOSING REMARKS
Antonio M. Gotto, Jr. (New York, NY, USA)

Supported by an educational grant from Kowa Pharmaceuticals.

The Satellite Symposium is open to all participants and is located in Al Wosail ballroom. Seating is limited and determined on a first-come, first-served basis.
SESSION 3:
PRE-DIABETES AND DIABETES

Keynote Lecture
Chair: Antonio M. Gotto, Jr. (New York, NY, USA)
2:15 pm – 2:40 pm
SPECULATION ON THE EVOLUTIONARY ORIGINS AND PERSISTENCE OF THE METABOLIC SYNDROME: POSSIBLE APPLICATIONS TO CLINICAL CARE
Jesse Roth (Whitestone, NY, USA)

Case Study Roundtable
THE PATIENT WITH PRE-DIABETES
Moderators:
Masoud Y. Al-Maskari (Muscat, Oman)
Marja-Riitta Taskinen (Helsinki, Finland)
2:45 pm – 3:00 pm
LIFESTYLE MODIFICATIONS TO PREVENT DIABETES: CURRENT STATUS OF SUCCESSFUL WORK
Jaakko Tuomilehto (Helsinki, Finland)

3:00 pm – 3:15 pm
PHARMACOLOGICAL TREATMENT OF THE PRE-DIABETIC STATE
Rafael Carmena (Valencia, Spain)

3:15 pm – 3:30 pm
IS A STATIN WARRANTED?
Antonio M. Gotto, Jr. (New York, NY, USA)

3:30 pm – 4:00 pm
PANEL DISCUSSION
Ibrahim Naguib El Ebrashy (Cairo, Egypt)
Mahmoud A. Zirie (Doha, Qatar)
Abdulla Al-Hamaq (Doha, Qatar)

4:00 pm – 4:30 pm
Coffee Break

State-of-the-Art Lectures
NOVEL THERAPIES FOR METABOLIC SYNDROME, DYSLIPIDEMIA, AND OBESITY
Moderators:
Abdullah Ben Nakhi (Kuwait City, Kuwait)
Michael Davidson (Chicago, IL, USA)
4:30 pm – 4:50 pm
CETP INHIBITORS
Philip Barter (Sydney, Australia)

8:30 am – 11:15 am
WEDNESDAY, MARCH 16
Hour:
SESSION 4:
LIPIDS AND CV COMPLICATIONS

Case Study Roundtable
PATIENTS WITH DIABETIC DYSLIPIDEMIA
Moderators:
Maryam Ebrahim Al Harmasi Al Hajeri (East Rufaa, Bahrain)
Gerd Assmann (Muenster, Germany)
8:30 am – 8:45 am
LOW HDL AND HIGH TG
Alberico L. Catapano (Milan, Italy)
8:45 am – 9:00 am
FAMILIAL DYSLIPIDEMIA
W. Virgil Brown (Atlanta, GA, USA)
9:00 am – 9:15 am
RESIDUAL CARDIOVASCULAR RISK IN STATIN-TREATED PATIENTS
Gerd Assmann (Muenster, Germany)
9:15 am – 9:35 am
PANEL DISCUSSION
Jassim Al Suwaidi (Doha, Qatar)
Abdurrazak Gehani (Doha, Qatar)
9:35 am – 10:05 am
Coffee Break
**SESSION 5: SELECTED ORAL PRESENTATIONS**

**Chairs:**
- Alvin I. Mushlin (New York, NY, USA)
- Rafael Carmena (Valencia, Spain)

11:15 am – 11:30 am  
**CARDIOVASCULAR COMPLICATION OF DIABETES IN QATAR**  
Alvin I. Mushlin, Paul J. Christos, Hiam Chemaitelly, Laith J. Abu-Raddad (New York, NY, USA and Doha, Qatar)

11:30 am – 11:45 am  
**SUSTAINED EFFECT OF LIPOPROTEIN LIPASE (LPL) GENE THERAPY ON CLINICAL EXPRESSION, CHYLOMICRON CLEARANCE AND ACYLGLYCEROL METABOLISM IN LPL DEFICIENCY**  
Daniel Gaudet, Julie Methot, Yacine Loucif, Claude Gagné, Stephane Deny, Janneke de Wal, Jaap Twisk, Frederique Frisch, Diane Brisson, André Carpenter (Montreal, QC, Canada, Amsterdam, Netherlands, and Sherbrooke, QC, Canada)

11:45 am – 12:00 pm  
**FTO POLYMORPHISM IS ASSOCIATED WITH DIABETES MELLITUS COMPLICATIONS**  
Jaroslav A. Hubacek, Dana Dlouha, Vera Adamkova, Tereza Pelikanova (Prague, Czech Republic)

12:00 pm – 12:15 pm  
**ROLE OF CNS IRS2 SIGNALING IN MEDIATING THE CHRONIC EFFECTS OF LEPTIN ON GLUCOSE REGULATION**  
J. Nathan Freeman, Jussara M. do Camo, Ahmad H. Adi, John E. Hall, Arthur C. Guyton, Alexandre A. da Silva (Jackson, MS, USA and Riyadh, Saudi Arabia)

12:15 pm – 12:30 pm  
**APOE*3LEIDEN.CETP TRANSGENIC MICE AS MODEL FOR THE METABOLIC SYNDROME**  
Anita M. van den Hoek, José W.A. Van der Hoorn, Annemarie CE Maas, Ria M. van den Hoogen, Anita van Nieuwkoop, Erik O. Offerman, Elsabet J. Pieterman, Louis M. Havekes, Hans M.G. Princen (Leiden, Netherlands)

12:30 pm  
End of the Session
SESSION 6: THERAPEUTIC GUIDELINES

Keynote Lectures

INTERNATIONAL GUIDELINES
Moderators:
Ibrahim Naguib El Ebrashy (Cairo, Egypt)
Abdulrazzaq Al Madani (Dubai, United Arab Emirates)
Alberico L. Catapano (Milan, Italy)

THE US GUIDELINES IN A GLOBAL CONTEXT 34
W. Virgil Brown (Atlanta, GA, USA)

EUROPEAN GUIDELINES IN A GLOBAL CONTEXT 35
Marja-Riitta Taskinen (Helsinki, Finland)

ASIAN GUIDELINES IN THE GLOBAL CONTEXT 36
Mahmoud A. Zirie (Doha, Qatar)

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Moderators:
Antonio M. Gotto, Jr. (New York, NY, USA)
Javaid I. Sheikh (Doha, Qatar)

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Poster Display and Viewing:
Participants may view the Poster Display in the foyer outside the Al Mukhtasar ballroom as follows:

- **Monday, March 14**
  - 5:00 pm – 7:00 pm
- **Tuesday, March 15**
  - 8:30 am – 6:20 pm
- **Wednesday, March 16**
  - 8:30 am – 5:25 pm

Poster Discussion:
One of the authors will be available at the poster site as follows:

**Poster Discussion Group B (#93-144):**
- **Wednesday, March 16**
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Abstracts

Monday
March 14, 2011

SESSION 1:
OPENING CEREMONY
5:00 pm - 7:00 pm

1- A GLOBAL PERSPECTIVE ON CVD, DIABETES, AND OBESITY
Thomas A. Gaziano. Harvard Medical School—Division of Cardiovascular Medicine at the Brigham and Women’s Hospital; Department of Health Policy and Management, Harvard School of Public Health; Boston, MA, USA.

Cardiovascular disease (CVD) is the single largest cause of death in the developed countries and is the leading cause of disease burden in all developing country regions except Sub-Saharan Africa where it is the second leading cause. Eighty percent of global deaths due to CVD occurs in the low and middle income countries. The rapid rise in CVD burden in most of the low and middle income countries is due to socio-economic changes, increase in life span and acquisition of lifestyle related risk factors. The CVD death rate, however, varies dramatically across the developing countries. The varying incidence, prevalence, and mortality rates reflect the different levels of risk factors, other competing causes of death, availability of resources to combat CVD, and the stage of epidemiologic transition that each country or region finds itself. Trends in diabetes and obesity are particularly alarming in all regions of the world. The economic burden of CVD is equally large but solutions exist to manage this growing burden.

2- REGIONAL AND ETHNIC PRONENESS TO DIABETES, OBESITY, AND THE METABOLIC SYNDROME
Mahmoud A. Zirie. Hamad Medical Corporation, Doha, Qatar.
Tuesday March 15, 2011

SESSION 2:
OVERWEIGHT AND OBESITY
8:30 am – 12:20 pm

3- LEPTIN AND THE BIOLOGIC BASIS OF OBESITY
Jeffrey M. Friedman, The Rockefeller University and Howard Hughes Medical Institute, New York, NY, USA.

The discovery of leptin has led to the elucidation of a robust physiologic system that maintains fat stores at a relatively constant level. Leptin is a peptide hormone secreted by adipose tissue in proportion to its mass. This hormone circulates in blood and acts on the hypothalamus to regulate food intake and energy expenditure. When fat mass falls, plasma leptin levels fall stimulating appetite and suppressing energy expenditure until fat mass is restored. When fat mass increases, leptin levels increase, suppressing appetite until weight is lost. By such a mechanism total energy stores are stably maintained within a relatively narrow range. Recessive mutations in the leptin gene are associated with massive obesity in mice and some humans. Treatment with recombinant leptin markedly reduces food intake and body weight. The low leptin levels in patients with leptin mutations are also associated with multiple abnormalities including infertility, diabetes and immune abnormalities all of which are corrected by leptin treatment. These findings have established important links between energy stores and many other physiologic systems and led to the use of leptin as a treatment for an increasing number of other human conditions including a subset of obesity, some forms of diabetes including type II diabetes, some forms of hypothyroidism, and immune deficiencies. The cessation of menstruation seen in extremely thin women is associated with major atherogenic abnormalities in lipoproteins. These include elevated triglycerides, lower HDL cholesterol, abnormal lipoprotein particle distributions and sometimes elevated LDL cholesterol. These changes are caused by multiple interrelated metabolic abnormalities in obese individuals, including increased adipose free fatty acid output, altered hepatic metabolism, and insulin resistance. In order to effectively design prevention and treatment strategies, it is important to have population-specific information on lipoproteins in obesity, because there appear to be ethnic differences in the influence of obesity on lipoproteins. Changes may be greater in European Caucasians, and less in African Americans. The data available on populations from the Middle East indicate high prevalences of obesity and significant proportions of persons with abnormal lipid levels, especially in urban groups. The limited data available suggest that obesity may be responsible for a large proportion of the dyslipidemias in the Middle East. While lipid lowering agents are effective in obese patients, the cornerstone of therapy and prevention should focus on lifestyle. Studies in diverse populations have established that even modest amounts of weight loss lower triglycerides and LDL cholesterol and raise HDL cholesterol. In addition, increasing physical activity is associated with higher HDL and lower triglycerides even in the absence of weight loss. These strategies should be advocated throughout the world to reverse the growing problem of dyslipidemia in obesity.

4- THE DYSLIPIDEMIA OF OBESITY
Barbara V. Howard, MedStar Health Research Institute and Georgetown University School of Medicine, Washington, DC, USA.

It has been well established that obesity is associated with major atherogenic abnormalities in lipoproteins. These include elevated triglycerides, lower HDL cholesterol, abnormal lipoprotein particle distributions and sometimes elevated LDL cholesterol. These changes are caused by multiple interrelated metabolic abnormalities in obese individuals, including increased adipose free fatty acid output, altered hepatic metabolism, and insulin resistance. In order to effectively design prevention and treatment strategies, it is important to have population-specific information on lipoproteins in obesity, because there appear to be ethnic differences in the influence of obesity on lipoproteins. Changes may be greater in European Caucasians, and less in African Americans. The data available on populations from the Middle East indicate high prevalences of obesity and significant proportions of persons with abnormal lipid levels, especially in urban groups. The limited data available suggest that obesity may be responsible for a large proportion of the dyslipidemias in the Middle East. While lipid lowering agents are effective in obese patients, the cornerstone of therapy and prevention should focus on lifestyle. Studies in diverse populations have established that even modest amounts of weight loss lower triglycerides and LDL cholesterol and raise HDL cholesterol. In addition, increasing physical activity is associated with higher HDL and lower triglycerides even in the absence of weight loss. These strategies should be advocated throughout the world to reverse the growing problem of dyslipidemia in obesity.

5- THE HYPERTENSIVE OBESE PATIENT
L. F. Van Gaal; I. Mertens; A. Verniksen, Department of Endocrinology, Diabetology and Metabolism, Faculty of Medicine, Antwerp University Hospital, Antwerp, Belgium.

Epidemiological studies have shown a BMI/ blood pressure association in normalweight and overweight patients. Weight gain in adult life especially seems an important risk factor for the development of hypertension. Several potential mechanisms have been suggested, including activation of the SNS and RAAS. Vasalcal fat preponderance may be the link between obesity phenotype and the pathogenic mechanisms. Weight loss –albeit disappointing at long term– has been recommended for the obese hypertensive patient and shown to be the most effective nonpharmacological treatment approach. In recent years, a modest weight loss, defined as 5% to 10% WL, has received increasing attention as treatment strategy for overweight and obese patients; this has been confirmed in hypertensive and nonhypertensive patients. Modest weight loss can normalize blood pressure levels even without reaching ideal weight, but intervention components should be explored in future research. In patients taking antihypertensive medication, modest weight loss leads to lowering or even discontinuation of need for antihypertensives. The blood pressure-lowering effect of weight loss is most likely a result of an improvement in insulin sensitivity and a decrease in SNS activity and occurs independent of salt restriction. However, salt restriction, as part of some low calorie diets, may enhance the blood pressure lowering effect of some antihypertensive medication. In view of the emerging role of aldosterone in the pathogenesis of obesity hypertension, mineralocorticoid receptor antagonism may play a more central role in the treatment possibilities. Major weight loss –as seen after bariatric surgery– has shown some controversial long-term results. Any weight loss intervention may be helpful in blood pressure improvement.

6- COGNITIVE FUNCTION IN NORMAL OLDER ADULTS: EFFECTS OF OBESITY, GENETICS, AND SLEEP APNEA
Jerome Yesavage, Mental Illness Research Educational and Clinical Center, Department of Veterans Affairs Medical Center, Palo Alto, CA, USA; Departments of Psychiatry and Behavioral Sciences and Neurology and Neurological Sciences, Stanford University School of Medicine, Stanford, CA, USA.

As individuals age they are subject to numerous factors that negatively impact cognitive function. The most well-known factor is the development of Alzheimer’s disease (AD) and its precursor Mild Cognitive Impairment (MCI). The development of both AD and MCI has been linked to genetics factors such as apolipoprotein E4 (APOE4) genotype, predominantly in individuals in their 70s and 80s. The question this work addresses is whether there are other factors such as obesity, sleep apnea and genes other than APOE4 that might affect cognition in older adults without AD and MCI in their 50s and 60s. Sleep apnea (SA) has long been linked to cognitive impairment as well as to obesity in older adults. To date no well-defined genetic factor has been linked to the development of SA, however, genes have been linked to the development of obesity. On the other hand, several large-scale metabolic studies have identified single nucleotide polymorphisms (SNPs) associated with the development of obesity as measured by the Body Mass Index (BMI). In a recent meta-analysis of relevant studies involving 249,796 individuals, two genes (FTO and TMEM18) and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI and associated SNPs were highly significantly (P = 4.8 x 10-120 and P = 2.8 x 10-49) associated with BMI. The presentation will examine the relationship of relevant genes and SNPs to cognitive function, BMI and SA in a population of older adults followed in our Center.

7- PERSONALIZED CARDIOVASCULAR MEDICINE
Gerd Assmann, Assmann-Stiftung für Prävention, Muenster, Germany.

The amount and complexity of knowledge in cardiovascular medicine related to conventional risk factors, biomarkers and non-invasive imaging will increase immeasurably as research into “omics” continues. The incorporation of this knowledge into advanced predictive models to accurately identify which patients will benefit from early intervention requires new health information technology that will deliver truly personalized healthcare. In this context, recent data from the PROsAM study will be presented that summarizes the degree of current sophistication of cardiovascular algorithms and genomic information in predicting future risk of myocardial infarction and stroke.
The metabolic syndrome is increasingly recognized as a risk factor for cardiovascular disease. The definition of metabolic syndrome has varied between medical organizations and over time, though the key elements are obesity, glucose intolerance, hypertension, and dyslipidemia. While each of the components is individually associated with increased cardiovascular risk, debate has existed over whether having the constellation defined as metabolic syndrome constitutes an additional cardiovascular risk, or if the risk is merely a sum of its parts. This presentation will explore the cardiovascular risk associated with both the components of and the metabolic syndrome itself, and the talk will review clinical strategies to assess for cardiovascular risk in patients with the metabolic syndrome.

KOWA SATELLITE SYMPOSIUM
PITAVASTATIN: A NEW STATIN AND ITS ROLE IN METABOLIC SYNDROME
12:30 pm – 2:00 pm
Antonio M. Goto, Jr. Weill Cornell Medical College, New York, NY, USA.

The metabolic syndrome describes a constellation of risk factors that confers increased risk for cardiovascular disease and type 2 diabetes. It is typically defined by the coexistence of conditions including abdominal obesity, atherogenic dyslipidemia, hypertension, hyperglycemia or insulin resistance, a prothrombotic state, and/or a proinflammatory state. Specific diagnostic criteria vary between the International Diabetes Federation, World Health Organization, American Association of Clinical Endocrinologists, American Heart Association, and the National Cholesterol Education Program (NCEP) in the United States. Controversy exists over the value of the metabolic syndrome as a clinical diagnosis, although it is clear that the presence of multiple risk factors has a compounding effect on cardiovascular risk. Obesity and physical inactivity are generally considered to be the underlying causes of metabolic syndrome. Prevalence of metabolic syndrome is high and increasing throughout the world. Data from the Third National Health and Nutrition Examination Survey indicates that in 1999-2000, approximately 44% of adults over 50 years of age in the United States met NCEP criteria for metabolic syndrome. In the Middle East, estimated rates for metabolic syndrome range between 22%-52% among various populations of Emiratis, Iranians, and Qatars. Epidemiological data from the Framingham Heart Study, San Antonio Heart Study, and Kuopio Ischaemic Heart Disease Risk Factor study suggest that the metabolic syndrome is a significant predictor of cardiovascular disease and type 2 diabetes. Post hoc analyses of the Scandinavian Simvastatin Survival Study (4S) and the Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS) indicate that the metabolic syndrome carries an increased risk not fully accounted for by traditional scoring methods in both primary and secondary prevention. Therapeutic management centers on weight reduction and increased exercise, which will help improve the various components of the metabolic syndrome, as well as treatment for individual risk factors. How to address the worldwide increase in rates of obesity and metabolic syndrome poses the greatest challenge to clinicians and policymakers. Other questions requiring further clarification include: the relationship of metabolic syndrome to conventional risk factors in the calculation of global risk; the role of insulin resistance and glucose control in the metabolic syndrome; optimal targets for therapy in patients with the metabolic syndrome; and the role of C-reactive protein and other markers of inflammation in the metabolic syndrome.

11- METABOLIC SYNDROME: EPIDEMIOLOGY AND CHALLENGES
Antonio M. Goto, Jr. Weill Cornell Medical College, New York, NY, USA.

The metabolic syndrome describes a constellation of risk factors that confers increased risk for cardiovascular disease and type 2 diabetes. It is typically defined by the coexistence of conditions including abdominal obesity, atherogenic dyslipidemia, hypertension, hyperglycemia or insulin resistance, a prothrombotic state, and/or a proinflammatory state. Specific diagnostic criteria vary between the International Diabetes Federation, World Health Organization, American Association of Clinical Endocrinologists, American Heart Association, and the National Cholesterol Education Program (NCEP) in the United States. Controversy exists over the value of the metabolic syndrome as a clinical diagnosis, although it is clear that the presence of multiple risk factors has a compounding effect on cardiovascular risk. Obesity and physical inactivity are generally considered to be the underlying causes of metabolic syndrome. Prevalence of metabolic syndrome is high and increasing throughout the world. Data from the Third National Health and Nutrition Examination Survey indicates that in 1999-2000, approximately 44% of adults over 50 years of age in the United States met NCEP criteria for metabolic syndrome. In the Middle East, estimated rates for metabolic syndrome range between 22%-52% among various populations of Emiratis, Iranians, and Qatars. Epidemiological data from the Framingham Heart Study, San Antonio Heart Study, and Kuopio Ischaemic Heart Disease Risk Factor study suggest that the metabolic syndrome is a significant predictor of cardiovascular disease and type 2 diabetes. Post hoc analyses of the Scandinavian Simvastatin Survival Study (4S) and the Air Force/Texas Coronary Atherosclerosis Prevention Study (AFCAPS/TexCAPS) indicate that the metabolic syndrome carries an increased risk not fully accounted for by traditional scoring methods in both primary and secondary prevention. Therapeutic management centers on weight reduction and increased exercise, which will help improve the various components of the metabolic syndrome, as well as treatment for individual risk factors. How to address the worldwide increase in rates of obesity and metabolic syndrome poses the greatest challenge to clinicians and policymakers. Other questions requiring further clarification include: the relationship of metabolic syndrome to conventional risk factors in the calculation of global risk; the role of insulin resistance and glucose control in the metabolic syndrome; optimal targets for therapy in patients with the metabolic syndrome; and the role of C-reactive protein and other markers of inflammation in the metabolic syndrome.

12- METABOLIC SYNDROME: LIPID MANAGEMENT IN THE CLINIC
Ibrahim S. Salti. Division of Endocrinology and Metabolism, American University of Beirut, Beirut, Lebanon.

The metabolic syndrome (MS) is a cluster of risk factors for atherosclerotic cardiovascular disease. One of the core components of MS is dyslipidemia which most likely initiates atherosclerosis, and is composed of high plasma triglycerides (TG), low levels of high-density lipoprotein cholesterol (HDL-C), and a preponderance of small, dense low-density lipoprotein (LDL) particles. The first-line therapy of the dyslipidemia in the MS is therapeutic lifestyle change. When it fails to correct the dyslipidemia, drug therapy may be required. LDL-C lowering with statins is the first-line pharmacological treatment. Post hoc analyses of prospective statin trials showed the benefit of lowering low-density lipoprotein (LDL) cholesterol in patients with the MS. Statin therapy exerts beneficial effects not only by lowering LDL cholesterol but also via its pleiotropic effects. These effects seem particularly important for reducing risk of CV disease in patients with the MS. The current LDL-C goal in high-risk patients with the metabolic syndrome is below 100 mg/dL. However, in very high-risk patients, such as those with established cardiovascular disease, an LDL-C goal of below 70 mg/dL is recommended. However, whether more aggressive LDL-lowering therapy with higher-dose statins as opposed to additional combination therapy aimed at lowering TG and raising HDL-C is the optimal therapy to reduce cardiovascular risk in subjects with the MS remains a matter of debate.

Fibrates have demonstrated clinical benefit in patients with the MS or 7DM. Subgroup analysis of the 5-year Helsinki Heart Study of patients without prior CHD suggested that diabetic patients who received gemfibrozil had a lower incidence of CHD than those who received placebo. The effectiveness of gemfibrozil in the secondary prevention of CVD was demonstrated in the 5-year Veterans Affairs High-Density Lipoprotein Cholesterol Intervention Trial (VA-HIT) of men with CHD, low HDL-C, and normal LDL-C. In diabetic patients, gemfibrozil reduced the composite endpoint of CHD death, stroke, or myocardial infarction (MI) vs placebo by 32% (P=.004), compared with a reduction of 24% (P=.001) in the total population. In patients with mixed dyslipidemia and MS, fibrates combined with statins produced greater improvement in multiple
metabolic parameters and in the percent of patients meeting diagnostic criteria for metabolic syndrome compared with either agent alone. Combination of a statin with a fibrate can improve all components of the dyslipidemia. However, there are, as yet, no large cardiovascular outcome studies that show a reduction in cardiovascular morbidity or mortality using combination therapy. Moreover, the use of fibrates as lipid-regulating drugs in the US became controversial after the results of the Fenofibrate Intervention and Event Lowering in Diabetes (FIELD) study because of the lack of a significant reduction in cardiovascular events. Niacin-based formulations provide the greatest LDL-C reductions (up to 35%), while reducing triglycerides (20%-30%) and LDL-C (10%-15%). Although niacin has been noted to increase blood glucose in diabetic patients, this effect is usually manageable by adjusting anti-diabetic therapy. In the HDL Atherosclerosis Treatment Study (HATS), diabetic patients receiving simvastatin and niacin had a substantially lower frequency of a first cardiovascular event than placebo-treated patients. However, these data have limitations including small sample size, relatively small number of events, and the comparison of simvastatin/niacin to placebo was based on placebo rather than simvastatin monotherapy. Simvastatin/niacin treatment also increased glucose and insulin levels. Other LDL-C-lowering agents (including ezetimibe, bile acid sequestrants, and plant sterol and stanol esters) may be particularly efficacious for attainment of LDL-C <70 mg/dl in patients already treated with a statin, or in patients who are intolerant to statin therapy. Omega-3 fatty acids or thiazolidinediones, particularly pioglitazone, may improve triglyceride and HDL-C abnormalities.

13- PITAVASTATIN: FROM PHARMACOLOGY TO CLINICAL PRACTICE
Michel Farmini. Lipid Clinic, Point Medical, Dijon, France.

Pitavastatin - a totally synthetic, enantiomerically pure statin - has a characteristic structure with, unlike other statins, the presence of a cyclopropyl group. Pitavastatin binds tightly to HMG-CoA reductase allowing inhibition of cholesterol synthesis at a lower dose than atorvastatin, simvastatin and pravastatin. One other characteristic of pitavastatin is that this agent is minimally metabolized by the cytochrome P450 isoenzymes, principally through CYP 2C9. Most of an oral dose of pitavastatin is excreted unchanged in the bile. Therefore, the incidence of any drug-drug interactions is reduced by comparison to other statins, and pitavastatin is a statin of choice for polymedicated patients. The efficacy and safety profile of pitavastatin has been determined by a large clinical development programme conducted both in Japanese and Caucasian populations. In Caucasian patients with primary hypercholesterolemia or combined dyslipidemia, pitavastatin 2 mg was non-inferior to simvastatin 20 mg, and showed statistical superiority in reducing LDL-cholesterol (LDL-C). Pitavastatin 4 mg and simvastatin 40 mg were similar in improvements of the lipid profile and in achieving LDL-C goal. Pitavastatin 2 mg and 4 mg was also equivalent to atorvastatin 10 mg and 20 mg in reducing LDL-C and other atherogenic lipid parameters. Moreover, the JAPAN-ACS study showed that pitavastatin 4 mg reduced coronary atheroma plaque volume as efficiently as atorvastatin 20 mg, effects also seen in the subset of patients with diabetes. Pitavastatin is generally well tolerated with a safety profile similar to other statins in randomized clinical trials. In summary, pitavastatin is among the more potent LDL-lowering drugs. Pitavastatin is distinguished by its low risk of drug-drug interactions. Therefore, pitavastatin is an appropriate treatment choice for patients receiving polypharmacy, such as patients with metabolic syndrome and/or type 2 diabetes.

14- STATINS IN THE TREATMENT OF DIABETES AND METABOLIC SYNDROME
Koutaro Yokote. Department of Clinical Cell Biology and Medicine, Chiba University Graduate School of Medicine, Chiba, Japan.

In diabetes and metabolic syndrome, which are major risk factors for coronary artery disease, comprehensive lipid control including TG and HDL-C in addition to LDL-C is recommended. Effectiveness of statins in treatment of hypercholesterolemia is already well-established. Among various statins, pitavastatin is characterized not only for its potent LDL-C-lowering but also through its TG-lowering and stable HDL-C-elevating effects. In CHIBA study, both pitavastatin 2 mg/day and atorvastatin 10 mg/day were shown to lower non-HDL-C, LDL-C and TG in hypercholesterolemic patients with metabolic syndrome upon administration for 12 weeks. Interestingly, significant improvement in HDL-C and TG levels were observed only in the pitavastatin treatment group. When the effects of pitavastatin and atorvastatin were compared in hypercholesterolemic subjects with glucose intolerance in PIAT study, elevation of HDL-C was significantly greater in the pitavastatin treatment group than that in the atorvastatin treatment group. CARDS, PROVE-IT TIMI-22 and JUPITER trials demonstrated significant cardiovascular risk reduction by statins. In addition, these studies have suggested a negative effect of statin on glucose metabolism. Recent meta-analysis on large-scale trials have shown that statin treatment was associated with increase in the new onset of diabetes. With regard to pitavastatin, it has been reported that HbA1c significantly decreased from the baseline in diabetic patients with hypercholesterolemia during a 2-year follow-up in LIVES study. Pitavastatin did not affect glycemic control in the European phase 3 study either. Therefore, no adverse outcome in glucose metabolism has been reported in relation to clinical use of pitavastatin so far. Currently ongoing J-PREDICT, a prospective trial to examine the cumulative incidence of diabetes in subjects with impaired glucose tolerance treated with pitavastatin or not, will hopefully provide direct evidence concerning a clinical effect of pitavastatin on glucose metabolism.

SESSION 3: PRE-DIABETES AND DIABETES
2:15 pm – 6:20 pm

15- SPECULATION ON THE EVOLUTIONARY ORIGINS AND PERSISTENCE OF THE METABOLIC SYNDROME: POSSIBLE APPLICATIONS TO CLINICAL CARE
Jesse Roth. Albert Einstein College of Medicine; Feinstein Institute for Medical Research, North Shore-LIJ Health System, Whitestone, NY, USA.

The metabolic syndrome in humans accompanies obesity and heralds diabetes. As in humans, the syndrome is promoted in dogs, mice and rats by overnutrition and physical inactivity. The wide distribution among mammals and the persistence of this energy demanding program suggests that the program is (i) hundreds of millions of years old and (ii) has strong survival value. In our review of human evolution, we focus on five key elements of human biology: 1) Energy balance; 2) High fixed body temperature; 3) Complex prolonged reproductive pathway; 4) Emergence of four large, well-defined fat depots, each with its own functional role; and 5) An immune system that is often up-regulated by nutrition-related signals, independent of the actual presence of a pathogen. We propose that the elements of the metabolic syndrome are adjuncts to the immunologic activation, and that the overactivation of the immune system was adopted evolutionarily in the distant past to help hold out against unconquerable infections such as tuberculosis, malaria, and trypanosomiasis. In the absence of other disease management methods, this immune activation is advantageous, especially under conditions in which life expectancy is short. The inflammation has become a major agent of pathology in wealthy populations in whom the pathogens are a minor threat and life expectancy is long. These considerations will be raised again as we weigh therapeutic options.

16- LIFESTYLE MODIFICATIONS TO PREVENT DIABETES: CURRENT STATUS OF SUCCESSFUL WORK
Jaakko Tuomilehto. Department of Public Health, University of Helsinki, Helsinki, Finland.

At the moment we are able to implement a low-cost and efficient screening programme to identify people at high risk of type 2 diabetes (T2D) using single non-laboratory risk scores. The evidence
from randomized controlled trials unequivocally also shows that prevention of T2D is possible. The effect of intervention has been found to be stronger with lifestyle modification than using pharmacologic agents in the prevention type 2 diabetes (T2D), reflecting the fact that lifestyle intervention addresses aetiological risk factors of T2D: 50-60% of the incident cases of T2D can be prevented in all ethnic groups and different socio-cultural settings. Limitations are: 1) they were carried out in people with impaired glucose tolerance (IGT), 2) they were relatively short – term, 3 to 6 years, and 3) interventions were mostly implemented in special research settings. New results from the 3 major prevention trials’ follow-up showed that the beneficial effect lasted for several more years even after the intensive intervention had been stopped.

The metabolic syndrome (MetS) is recommended to identify subjects at risk of diabetes and cardiovascular disease (CVD). In the European DECODE study a statistically significant higher risk of CVD in subjects with the MetS in comparison to those at low CVD risk without the MetS. However, in subjects with a high estimated CVD risk, the MetS did not add a risk prediction over and above the three traditional CVD risk factors. Thus, it is not clear whether MetS adds anything important over and above the traditional CVD risk factors.

17- PHARMACOLOGICAL TREATMENT OF THE PRE-DIABETIC STATE

Rafael Carmena. Department of Medicine, University of Valencia, Valencia, Spain.

Prediabetes describes a condition involving impaired glucose tolerance (IGT, 2 h plasma glucose= 140-199 mg/dl) and/or impaired fasting glucose (IFG, 100-125 mg/dl). People with prediabetes at increased risk to develop type 2 diabetes mellitus (T2DM) and cardiovascular disease and death, even before the development of diabetes. Several studies have demonstrated beneficial effects of intensive lifestyle intervention in preventing the development of T2DM in prediabetes populations. However, similarly high success rates cannot be anticipated in routine clinical practice where the majority of individuals will fail to adhere to intensive lifestyle interventions for a prolonged period of time. There is a need for safe and effective pharmacologic agents in combination with lifestyle modification programs.

Pharmacologic interventions should be individualized as a second-line adjunct to lifestyle modification. Drugs that have been shown to reduce the relative risk of progression to T2DM include metformin, acarbose, the thiazolidinediones, and orlistat. The initial use of metformin is supported by its relative safety, cost effectiveness, and long-term data. Growing evidence suggests that progression to T2DM can also be reduced by ACE inhibitors, ARBs, or incretins. Reasonable goals in prediabetes are the prevention of glycemic deterioration, as indicator of preservation of a cell function, and concomitant modification of nonglycemic risk factors in order to avoid or reduce cardiovascular complications. Delaying the onset of diabetes has been demonstrated in many studies but true pharmacologic prevention of T2DM is still a complex issue difficult to prove. Long-term follow-up after cessation of therapy will be needed to show if beneficial effects continue.

18- IS A STATIN WARRANTED?

Antonio M. Gotto, Jr. Weill Cornell Medical College, New York, NY, USA.

Patients with pre-diabetes are diagnosed on the basis of impaired fasting glucose or impaired glucose tolerance and may also meet diagnostic criteria for metabolic syndrome. Pre-diabetes is associated with a 1.5-fold increased cardiovascular risk compared to individuals with normal glucose levels. Patients with diabetes carry a 2- to 4-fold increased risk for cardiovascular disease and experience higher cardiovascular mortality rates than patients without diabetes. Therapeutic efforts to prevent the progression from pre-diabetes to diabetes focus on lifestyle modification and weight loss. Control of cardiovascular risk factors, including treatment of abnormal lipids, is also essential. Diabetes and the metabolic syndrome are often associated with atherogenic dyslipidemia, which is characterized by low levels of HDL cholesterol, high triglycerides, and LDL particles that are small and dense. Treatment with a statin to address elevated LDL cholesterol levels is warranted in pre-diabetic individuals who are determined to be at moderate or high risk. Statins can also favorably alter triglyceride and HDL cholesterol levels, but some patients with pre-diabetes may benefit from combination therapy with a fibrate or nicotinic acid in addition to a statin. Although recent meta-analyses have shown that statins are associated with a slightly increased risk of developing diabetes, this risk is offset by the cardiovascular benefit of this class of drug. This presentation will consider the above issues in the context of a case study.

19- CETP INHIBITORS

Philip Barter. The Heart Research Institute, Sydney, Australia.

Inhibition of the cholesteryl ester transfer protein (CETP), a plasma protein that normally transfers cholesterol from the protective HDL fraction to the atherogenic LDL fraction, results in an increase in concentration of HDL cholesterol and a decrease in concentration of LDL cholesterol and has been shown in rabbits to inhibit the development of atherosclerosis. The CETP inhibitor, torcetrapib, was investigated in humans in imaging trials that failed to demonstrate an effect on atheroma in either the carotid or coronary arteries. When tested in a large clinical outcome trial, treatment with torcetrapib was associated with an increase in cardiovascular events and an increase in total mortality. As a result the development of torcetrapib was terminated. The reason for the adverse effects of torcetrapib are still not known with certainty but evidence is emerging that they may have been the consequence of an off-target pharmacology of torcetrapib unrelated to inhibition of CETP. The potential of CETP inhibition to reduce cardiovascular risk will be determined by the outcome of ongoing clinical trials with CETP inhibitors such as dalce-trapib and anacetrapib that do not share the off-target effects of torcetrapib.

20- MTP INHIBITORS

Michael Davidson. Radiant Research, Chicago, IL, USA.

Inhibition of the cholesteryl ester transfer protein (CETP), a plasma protein that normally transfers cholesterol from the protective HDL fraction to the atherogenic LDL fraction, results in an increase in concentration of HDL cholesterol and a decrease in concentration of LDL cholesterol and has been shown in rabbits to inhibit the development of atherosclerosis. The CETP inhibitor, torcetrapib, was investigated in humans in imaging trials that failed to demonstrate an effect on atheroma in either the carotid or coronary arteries. When tested in a large clinical outcome trial, treatment with torcetrapib was associated with an increase in cardiovascular events and an increase in total mortality. As a result the development of torcetrapib was terminated. The reason for the adverse effects of torcetrapib are still not known with certainty but evidence is emerging that they may have been the consequence of an off-target pharmacology of torcetrapib unrelated to inhibition of CETP. The potential of CETP inhibition to reduce cardiovascular risk will be determined by the outcome of ongoing clinical trials with CETP inhibitors such as dalce-trapib and anacetrapib that do not share the off-target effects of torcetrapib.

21- PPARS

Willa A. Hseuh. The Methodist Hospital Research Institute, Houston, TX, USA.

Bariatric - or more appropriately, metabolic – surgical procedures, have been shown to cause sustained weight loss and dramatically improve plasma glucose, blood pressure, and lipids control in severely obese type 2 diabetic patients (BMI >35 kg/m2). In these patients, metabolic surgery involves a low-risk of short-term mortality and morbidity and a significant survival advantage over the long-term. This is particularly striking when compared to the significant mortality associated with the diagnosis of diabetes. Experimental studies in animals as well as clinical trials suggest that gastrointestinal bypass procedures can control diabetes and associated metabolic alterations by mechanisms that are independent of and additive to body weight loss. Further investigations into the mechanisms of weight and diabetes control after gastrointestinal surgery may help clarify the role of the gastrointestinal tract in the pathophysiology of obesity and diabetes and identify new targets for pharmacologic interventions.

23- ANTI-OBESEITY THERAPES

Louis J. Aronne. Weill Cornell Medical College, New York, NY, USA.

Obesity is a complex disorder which is a leading cause of multiple medical problems. While medications are available to treat the complications of obesity such as diabetes, hypertension, and dyslipidemia, the search for effective obesity treatments to address the underlying cause of these disorders has lagged because of the difficulty understanding and managing body weight regulating mechanisms. At present, one drug is available for long-term treatment of obesity, orlistat, and another is available for short-term treatment, phentermine. As with other chronic disease treatment models, many more drugs are needed to effectively address the problem. While many new compounds are in development, two combinations and a new compound have reached the FDA. A phase III placebo-controlled trial of lorcaserin in 3,182 overweight or obese patients demonstrated that at 1 year, 47.5% of participants receiving lorcaserin lost 5% or more of their body weight (>p=0.001), an average placebo-subtracted weight loss of 3.6kg (5.8kg with lorcaserin vs. 2.2kg with placebo, p < 0.001) (5). The most common side effects of lorcaserin included headache, dizziness, and aching. Controlled release Phentermine/topiramate produced 9.4%, 6.6%, and 3.5% placebo subtracted weight loss in the full, mid, and low dose groups as compared to placebo, respectively. Individual, both drugs were prescribed more than 5 million times last year. Contrave, a sustained-release formulation comprising the combination of naltrexone and buproprion, was approved by an FDA panel. Naltrexone is approved for opioid dependence and nicotine, while buproprion is approved for depression and smoking cessation. At 56 weeks, the weight loss in the high dose (360B/32Nmg) group was -6.1%, and -5.0% in the low dose (360B/16Nmg) group compared to placebo (+1.3%).
After adjusting for other risk factors, diabetes mellitus more than doubles the probability of a MI or stroke. High blood pressure, higher triglycerides and lower concentrations of HDL cholesterol are found more commonly in the diabetic population. Microvascular disease also predicts a higher incidence of major vascular events. One can separately inherit lipid disorders that raise LDL cholesterol, triglycerides and lower HLDL. These lipid abnormalities are frequently exacerbated by diabetes. Case Study: 45 year old woman with known diabetes mellitus for 5 years. She is treated with metformin and a sulfonylurea with a HgbA1c between 6.5 and 7.2%. She does not know her lipid values and is unaware of any signs or symptoms of CVD. Does not take other medications. Her father died suddenly at 58 years. He did not smoke and was unaware of diabetes but was a bit overweight and had “high normal blood pressure.” His cholesterol was also elevated. Physical Exam: Ht. 5’4” (1.62 M), Wt. - 160 lbs (72.7 Kg); Waist – 37”; BP - 138/83. Physical exam is otherwise within normal limits. Laboratory: FPG 110 mg/dL, HgbA1c - 7.0%. Total chol- 205, LDL-C - 125, HDL-C - 30, TG -252 mg/dL. Normal tests include: LFTs, electrolytes, BUN, creatinine, TSH. Microalbumin/creatinine ratio - 45 mg/G. The ECG shows increased voltage in leads V4, V5 and V6. Her father’s health records reveal: Triglycerides 380 mg/dL, Cholesterol 190 and HDL-C – 28 mg/dL. A brother’s values are: Triglycerides 210 and Cholesterol 225 mg/dL. In addition to diabetes, what other diagnoses can be made?

25- FAMILIAL DYSLIPIDEMIA
W. Virgil Brown, Emeritus College, Emory University, Atlanta, GA, USA.

After adjusting for other risk factors, diabetes mellitus more than doubles the probability of a MI or stroke. High blood pressure, higher triglycerides and lower concentrations of HDL cholesterol are found more commonly in the diabetic population. Microvascular disease also predicts a higher incidence of major vascular events. One can separately inherit lipid disorders that raise LDL cholesterol, triglycerides and lower HDL. These lipid abnormalities are frequently exacerbated by diabetes.

Case Study: 45 year old woman with known diabetes mellitus for 5 years. She is treated with...
unique genetic variations in Qataris compared to genome-wide exome deep sequencing is revealing regard to genetic variations in the ApoE gene, with differences in the Qatari population of the frequency forming the basis of an ongoing study to assess the -nucleotide polymorphism (SNP) analysis. Single genomic structure using genome-wide 500,000 Medical Corporation, Qatar University, and Cornell 11:15 am – 12:30 pm SELECTED ORAL PRESENTATIONS Hamad General Hospital and 382 control patients MI (N=512) or CVA (N=262) were recruited from Qatar. We conducted a case-control study with the leading causes of death worldwide and in Qatar. Nothing is known about an potential predictor of body mass index and diabetes mellitus development. Whether activation of IRS2 in the CNS mediates the chronic CNS actions of leptin on glucose homeostasis is still unknown. In the present study we compared the responses to chronic leptin administration on glucose regulation in control mice (IR2flox/flox mice, n=4) and in mice with selective deletion of the IRS2 signaling in the CNS (IRS2/ IRS2flox/flox mice, n=4) using Cre-Lox technology. At baseline (between 25and35 weeks of age) IRS2/IRS2-Cre mice were heavier (51.8±2.7 vs. 52.5±3.2g) but exhibited similar fasting blood glucose levels (162±2.7 vs. 169±2.8mg/dL) and AUC during a baseline GTT (1.5g/kg single i.p. bolus injection of dextrose) compared to control mice. Leptin administration for 7 days at a dose of 1mg/kg i.m. via an osmotic minipump implanted i.p. significantly reduced blood glucose levels in both groups (162±2.7 to 131±8 and 169±6 to 144±11mg/dL, respectively). No differences were observed during a GTT performed on day 6 of leptin

departments at Hamad (years 2006-2008). The association between history of diabetes and development of MI/CVA, after adjustment for hypertension, dyslipidemia, smoking, obesity, and demographic factors, was evaluated by multivariate logistic regression. Adjusted odds ratios (OR) and 95% confidence intervals (95% CI) are presented. Results: After multivariate adjustment, a history of diabetes was associated with a 3.3-fold (95% CI=2.0, 5.6; P<0.0001) and 3.7-fold (95% CI=2.0, 6.9; P<0.0001) increased risk of MI and CVA, respectively. Trends for elevated MI/CVA risk were also observed among the small subgroup of Qatari-native participants, with adjusted ORs associated with diabetes for MI/CVA risk of 2.9 (95% CI=0.9, 9.8; P=0.08) and 2.7 (95% CI=0.7, 11.8; P=0.17), respectively. Conclusions: A history of diabetes was strongly related to cardiovascular complications in Qatar. Interestingly, the association between diabetes and MI risk in Qatar was higher than that observed in studies conducted in the United States. Elevated risks were also observed among Qatari-native participants. Further evaluation of this subgroup is important and of interest.

30- SUSTAINED EFFECT OF LIPOPROTEIN LIPASE (LPL) GENE THERAPY ON CLINICAL EXPRESSION, CHYLOMICRON CLEARANCE AND ACYLGLYCEROL METABOLISM IN LPL DEFICIENCY Daniel Gaudet1; Julie Method1; Yacine Loucif2; Claude Gagné2; Stephane Dery1; Janneke de Wal1; Jaap Twisk1; Frederique Frisch3; Diane Brisset1; André Carpenter1.

ECOCENE-21, Montreal university, Chouicoutin, QC, Canada; 1CHU, Laval University, Quebec, QC, Canada; 2Amsterdam Molecular Therapeutics, Amsterdam, Netherlands; 3Sherbrooke University Hospital, Sherbrooke, QC, Canada.

Aims. Lipoprotein lipase deficiency (LPLD) is an inherited disorder associated with hypertriglyceridemia and increased risk of pancreatitis or cardiometabolic complications. AAV1-LPLS447X gene therapy was designed to supplement LPL activity in LPLD patients. We describe the long term (> 1 year) effect of alipogene tiparvovec on chylomicron kinetics, acylglycerol metabolism and clinical outcomes.

Methods: In two successive open-label studies involving 14 (011-01) and 5 (011-02) LPLD adults respectively, alipogene tiparvovec was administered in a single series of intramuscular injections. The 011-02 study included post-prandial testing conducted at 12 and 52 weeks using a low fat meal with a tracer ([3H]-palmitate). A third study (011-03) was designed to estimate the effect of therapy on the incidence of pancreatitis.

Results: Indepedently of effects on fasting TG, significant changes in TG-rich lipoprotein characteristics and metabolism were observed 14 and 52 weeks after alipogene tiparvovec administration. A significant reduction of level of 3H in total plasma and reduction of 3H-Chyomicron AUC over 24 hours suggested an important increase of CM clearance. 3H-Chyomicron AUC in treated patients was of similar magnitude to that of healthy subjects who ingested a fat meal. A significant decrease of the non-labeled TG in CM was observed. Long term monitoring revealed sustained CM clearance at 1 year post treatment (N=3). Meanwhile, pancreatitis incidence deceased.

Conclusion: AAV1-LPLS447X gene therapy had only a transient effect on fasting TG but significantly modified the characteristics and kinetics of chylomicron in LPLD patients. These modifications may contribute to explain the clinical outcomes.

31- FTO POLYMORPHISM IS ASSOCIATED WITH DIABETES MELLITUS COMPLICATIONS Jaroslav A. Hubacek1; Dana Dlouhá1; Vera Adamkova1; Tereza Pelikanova2; J. Nathan Freeman1; Jussara M. do Carmo2; Ahmad H. Adi1; John E. Hall1; Arthur C. Guyton; Alexandre A. da Silva2.
1University of Mississippi, Jackson, MS, USA; 2Physiology and Biophysics, University of Mississippi Medical Center, Jackson, MS, USA; 3College of Medicine, Alfasali University, Riyadh, Saudi Arabia.

Introduction: FTO (both type I and II, males and females) and in 2275 participants. Further evaluation of this subgroup is important and of interest.
The effects on bw, plasma lipids and IR (via plasma glucose/insulin and/or hyperinsulinemic euglycemic clamp) were assessed.

**Methods:** Male E3L.CETP mice were put on a high fat diet and fructose in drinking water for 12-16 weeks to induce diet-induced obesity and IR. Thereafter, the mice were treated with either resiglitazone (3 and 11 mg/kg/d), iraglutide (0.2 mg/kg/d), HS-D1 inhibitor (0.1 mg/kg/d), resveratrol (75 mg/kg/d), fenofibrate (12 mg/kg/d), atorvastatin (10 mg/kg/d) or niacin (720 mg/kg/d) for 4 weeks. The effects on bw, plasma lipids and IR (via plasma glucose/insulin and/or hyperinsulinemic euglycemic clamp) were assessed.

**Results:** Dietary treatment resulted in a human-like lipoprotein profile with a TC/HDL-C ratio of 3-4. Anti-diabetic compounds resiglitazone, iraglutide and HS-D1 inhibitor significantly decreased glucose and insulin levels or IR. Iraglutide and HS-D1 inhibitor also decreased bw. Established lipid-lowering compounds atorvastatin, fenofibrate and niacin, and resveratrol improved the dyslipidemia.

**Conclusion:** The data indicate that the E3L.CETP mouse is a promising model to investigate the effects of new drugs, alone or in combination, that affect IR and diabetic dyslipidemia.
accessed by hospitals and primary health care facilities, and employing technology in developing e-learning material is essential, but is challenged by the availability of proper technical expertise and lack of infrastructure. Setting standards for diagnostics and patient management is also a key component in providing optimal healthcare. Cutting edge research and investigating the relationship of the genome to different health conditions will contribute to evidence base-knowledge when technical expertise is available. If all previous approaches are keyed in, better understanding, preventing or even curing these conditions is possible.

39- WOMEN AND DIABETES
Abdulrazzaq Ali Al Madani, Dubai Hospital, Dubai Health Authority, Dubai, U.A.E.

Women living with diabetes need to take extra-special care of their health through the challenges of stress, sex, pregnancy, and menopause. Diabetes can be especially hard on women. The burden of diabetes on women is unique, because the disease can affect both mothers and their unborn children. Diabetes can cause difficulties during pregnancy such as a miscarriage or a baby born with birth defects. Congenital malformation often develops before the woman knows she is pregnant. Macrosomia the most common complication of diabetes, maternal hyperglycaemia leads to fetal hyperglycaemia, which in turn stimulates the fetal pancreas and leads to maturation of normally immature pancreatic beta cells in the fetus; as a result, the fetal pancreas produces excessive amounts of insulin (a growth factor for fetal tissue). At delivery when the maternal blood supply is eliminated, the fetus continues to produce excess amounts of insulin that may result in neonatal hypoglycaemia. Prolonged and severe hypoglycaemia may be associated with severe neurological sequelae.

Common questions asked by women with diabetes:
- What are the complications of using birth control pills while having diabetes?
- What are the advisable blood glucose levels for women that are pregnant?
- I had gestational diabetes. How soon after having the baby should I get my blood glucose rechecked?
- Can women with diabetes breastfeed their babies?
- What are some of the symptoms of women’s sexual health issues related to diabetes?
- Will menopause affect my diabetes?

Monday
March 14, 2011—Wednesday
March 16, 2011

POSTER DISCUSSION
GROUP A

40- FACTORS ASSOCIATED WITH FIBRATE-INDUCED CREATININE ELEVATION
Ahmed Abbas1, Shanath Ramachandran2, Sanjay Saraf2, Sud Ramachandran1
1Department of Medicine, Heart of England NHS Foundation Trust, Birmingham, United Kingdom; 2Department of Medicine, Heart of England NHS Foundation Trust, Heart of England NHS Foundation Trust, Birmingham, United Kingdom;

Introduction:
It has been recognised that fibrates raise creatinine in some patients. However, this phenomenon is poorly understood. We wished to study changes seen in creatinine following fibrate therapy as well as factors associated with any change that may be detected.

Methods:
Data was collected from case notes of patients started on fibrates (n=132) in the lipid clinic at Good Hope Hospital, Sutton Coldfield between 2002-2008. Pre and post-fibrate creatinine concentrations were obtained from our pathology database. Creatinine was measured using the Jaffe method on the Roche modular P Unit.

Results:
Fenofibrate was used in 117 (88.6%) patients while the remaining 15 patients were on bezafibrate. Creatinine increased from a mean of 81.9 (sd=17.3, median=83, range: 33-127)umol/l to 93.8 (sd=20.4, median=91, range:52-143)umol/l following fibrate treatment. We investigated factors that were associated with the change in creatinine, by carrying out separate linear regression analyses with creatinine change as the dependent variable and baseline factors as well as duration of treatment as independent variables. Male gender (coefficient=-0.20 (95% ci: -0.35/-0.046), p= 0.011) and diabetes (coefficient= -0.37 (95% ci:-12.36/-0.38), p= 0.037) were significantly associated with creatinine change. Male gender and pre-treatment creatinine remained significant when all the factors were entered into a multiple regression model.

Discussion:
This study confirms that creatinine increased in our group of patients when fibrates were commenced. We found that male gender and lower pre-treatment values of creatinine were associated with greater increases in creatinine.

41- SIGNIFICANT INCREASE IN HDL-C WITH FIBRATES IS ASSOCIATED WITH LOW PRE-TREATMENT HDL-C: FINDINGS FROM AN OUTPATIENT CLINIC SETTING
Ahmed Abbas1, Sanjay Saraf2, Christina Jewkes2, Alan Jones3, Sud Ramachandran1
1Department of Medicine, Heart of England NHS Foundation Trust, Birmingham, United Kingdom; 2Department of Medicine, Heart of England NHS Foundation Trust, Birmingham, United Kingdom;

Introduction:
Inconsistent findings regarding cardiovascular outcomes have been the common theme of randomized controlled trials using fibrates. However, even in trials demonstrating no significant benefit in cardiovascular outcome, subgroup analysis reveals significant reduction in cardiovascular disease in patients with low HDL-C and high triglycerides. Furthermore, the HDL-C change in these trials
42- MOLECULAR SIGNATURE OF HUMAN BROWN ADIPOCYTE-LIKE PAZ6 CELLS

Mouaad Abdekarim1; Virginia Takhashi2; Smitha Kota, 3; Donny Strosberg; Lotfi Chouchane 1GENETIC MEDICINE, Well Cornell Medical College in Qatar, Doha, Qatar; 2Infectology, Scripps Research Institute-Florida, Jupiter, FL, USA

Prevalence of metabolic syndrome is directly correlated with increased occurrence of obesity characterized by accumulation of fat in visceral, lower body, and upper body subcutaneous depots. In a number of species, brown adipocytes (BA) convert triglycerides into heat by non-shivering thermogenesis, thus controlling the amount of white adipose tissue. Until recently, organized Brown Adipose Tissue (BAT), mostly composed of BA, was thought to be present in human new-borns but mostly absent in adult humans, except when associated with rare tumors such as pheochromocytoma and hibernoma. Recently however, sizeable BAT depots have been visualized by Positron Emission Tomography (PET) and Computed Tomography (CT) scanning, independently of tumors, this presence of BAT was confirmed by immunohistochemistry on biopsy samples, revealing expression of Uncoupling Protein 1 (UCP1), the hallmark of BAT. Human BA-like PAZ6 cells produce multilocular fat, express UCP1 and the \( \beta \)-adrenergic receptor, secrete leptin and do lipolysis and glucose oxidation (Zilberfarb et al., J. Cell. Sci. 1997). We have identified several additional BA-specific markers, including adiponectin and PDM16. This was done by using real time RT-PCR on RNA, and by immunoblot with specific antibodies performed on cell lysates and supernatants of cells treated before and after differentiation with various compounds such as isoproterenol, a \( \beta \)-adrenergic receptor agonist and rosiglitazone, a PPAR\( \gamma \) agonist. PAZ6 cells constitute readily available surrogates for human brown adipocytes to develop pharmacologic strategies to promote BAT expansion and activation.

43- LATE ONSET HYPOGONADISM AND TYPE 2 DIABETES MELLITUS

Mohamed Mostafa Arafa, Wael Zohdy, Samar Hassona Aboulousd1

Andrology, Cairo University School of Medicine, Cairo, Egypt; 2Andrology, Cairo University School of Medicine, Cairo, Egypt; 3Internal Medicine, Medical education, Cairo University, School of Medicine, Hamad Medical Corporation, Doha, Qatar

Aim: To assess the prevalence of LOH in men with type 2 diabetes and investigate the relationship between both diseases.

Patients and methods: Patients with Type 2 diabetes mellitus coming to internal medicine clinic were screened for LOH. During the initial visit, full hormonal profile was done including total testosterone (TT), FSH, LH and prolactin. Fasting (FBS) and post-prandial (PPBS) blood sugar as well as Hba1c were assessed. The patients were asked to complete the aging male symptoms rating score (AMS) and the abridged version of the International Index of Erectile Function (IIEF-5). Patients with diagnosed LOH were given testosterone replacement therapy (TRT). LOH patients who received TRT were classified as treatment group (n=56) while those who refused TRT were considered as control (n=31). Follow up was done after 6 months.

Results: 212 patients were included in the study, 87 patients were diagnosed to have LOH. At the initial visit, the glycemic control in the eugonadal group was significantly better. The lipid control including total cholesterol, LDL and triglycerides were also better in eugonadal than hypogonadal group while HLD did not show statistical difference. In the follow up visit, treatment group showed significant reduction in body weight and body mass index as well as FBG, PPBS, Hba1c, total cholesterol, LDL, TG and AMS score while IIEF showed significant increase.

Conclusion: LOH is prevalent among patients with type 2 diabetes and appears to negatively affect the glycemic and lipid profile. Testosterone supplementation helps to improve this delirious effect.

44- THE CONSUMPTION OF ARGAN OIL INDUCES A MARKED LIPID LOWERING EFFECT IN NEVER-TREATED PATIENTS WITH DYSLIPIDEMIA

Ahmed Adlouni1; Mahmoud Yezid2; Mariame El Messal2; Mohamed Said El Kebbia3; Abdelmajid Chrahb1

1Cardiovascular Physiopathology Unit, Faculté des Sciences Ben Msiak, Casablanca, Morocco; 2Laboratoire de Biochimie, Faculté des Sciences Ain Chock, Casablanca, Morocco; 3Endocrinology Department, Faculté de Médecine, Rabat, Morocco

Objective: In order to manage dyslipidemia by using diet recommendations based on argan oil consumption, we were interested to study for the first time, the effect of argan oil consumption on plasma lipids in never-treated Moroccan dyslipidemic patients.

Patients and Methods: 24 dyslipidemic patients visiting the endocrinology department of University Hospital of Rabat, Morocco, have been enrolled in this interventional study with argan oil. During two weeks period of stabilization, all patients have consumed 20 g of saturated fat during the breakfast. During the interventional period, all patients have used continuously-dietetic recommendations and were divided in two groups: the first group is composed by 9 patients as control group. The second group is composed by 15 patients as argan oil group, and has consumed daily 25 ml of argan oil. The lipid and anthropometric parameters have been measured at the end of both stabilization and interventional periods.

Results: We demonstrated for the first time that consumption of argan oil improve the lipid status in never-treated patients with dyslipidemia and then can be recommended in nutritional prevention in the management of ischamic coronary heart diseases. Funding: AgroTechnologies SMI, Argan oil Company

45- PARAMETERS OF METABOLIC SYNDROME IN SUBJECTS UNDERGOING CORONARY ANGIOGRAM: CASE STUDY FROM A TERTIARY CARE HOSPITAL IN BANGLADESH

Faria Afzana1; Zatar Ahmed Lati1; M. Maksunul Haq2

1Out patient Clinic, Bangladesh Institutes of Research and Rehabilitation of Diabetes, Endocrine and Metabolic Disorders, Dhaka, Bangladesh; 2Department of Endocrinology, Bangadesh Institutes of Research and Rehabilitation of Diabetes, Endocrine and Metabolic Disorders, Dhaka, Bangladesh

Objective: To assess baseline characteristics of different parameters of metabolic syndrome among subjects undergoing coronary angiogram.

A total of 260 subjects were selected from Iyibrain Cardiac Hospital and Research Institute (ICHR), who reported for coronary angiogram (CAG), among them 64.6% had metabolic syndrome, 79.2% had positive and 20.8 % had normal angiographic finding. Among the CAG positive subjects 38.83% had single vessel disease, 30.09% had double vessel disease and 31.08% had triple vessel disease. CAG positive subjects are mostly 40-60 years of age, 78.6% male, 54.85% smoker, 62.1% had waist circumference above normal, and about 90% have dyslipidemia and dysglycemia (DM/IGT/IFG). In this study subjects 83.9 % of diabetic and 69.76 % of nondiabetic had positive angiographic finding. In multiple
regression analysis taking angiographic positivity as dependent variable and different parameters of metabolic syndrome as independent variables, it was observed that hypertriglyceridemia, waist circumference, hypertension are significantly related with positive angiographic finding. However low HDL and Dysglycemia are not significantly related with angiographic positivity. Waist circumference, hypertension and hypertriglyceridemia are significantly predicting cardiovascular event in this study subjects.

47- DREAM & REALITY IN SLEEVE GASTRECTOMY
Amer Hashim Al Ani1; Hussen Shamout1; Awad Al Dumour1; Montner Abu Reden1; Sallam Al Hanash1
1General Surgery, Al Bashir Teaching Hospital, Amman, Jordan

Introduction: Morbid Obesity affects as much as 10% of the American population. The morbidly obese are subject to social stigma & to increased risk of sudden death due to heart attack, stroke. Bariatric procedures are used to treat Morbid Obesity. Sleeve gastrectomy is one of the restrictive bariatric procedures. It includes resection of the fundus and body of stomach to create a long, tubular conduit along the lesser curve (leaving 30 - 50 % of the stomach). The mechanisms of weight loss and improvement in co-morbidities seen after Sleeve gastrectomy might be related to gastric restriction, Neuro- Humoral changes, or some other unidentified factors.Complications. Aim: We present our early experience in Sleeve gastrectomy.

Methods: 35 patients were selected, 32 females & 3 males, the age range was between 17- 49 year. Their height were between 1.56 - 1.90 M

Results: An average of 10 kg loss per month were noted & a marked improvement in weight related co-morbidities ( DM, Hypertension, Ischemic Heart Disease, Sleep Apnea, Disc Prolapse, Snoring, & Irregular Menstrual period) were reported. Wound infection, Hair fall, Vomiting, Port Hernia & GERD were the post operative complication. One patient died because of Guillain–Barre syndrome. Conclusion:Sleeve gastrectomy is a safe procedure , with accepted weight loss rate, yet it is not with out side effects.

48- HOW TO IDENTIFY METABOLIC SYNDROME
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The metabolic syndrome is characterized by a group of metabolic risk factors in one person. These factors include: Obesity , dyslipidaemia ,high blood pressure, glucose intolerance , and Prothrombotic state. people with this syndrome are at increased risk of CAD and other diseases related to atherosclerosis and type 2 diabetes. Metabolic syndrome is quite common, ~ 20-30 % of the population in the industrialized countries have metabolic syndrome. The prevalence is increasing at an alarming rate globally in parallel with obesity rates. Environmental and genetic factors play A fundamental role. The definition of metabolic syndrome has been evolved over time. Various diagnostic criteria have been proposed by different organizations over the past decade started by Kiyin E. in 1923 , followed by Vague J 1947 , Reaven G 1998 , WHO criteria in 1999 , NCEP, ATP-III criteria in 2001, AHA/NHLBI in 2005 and finally in 2009 a joint statement, by IDF, NHLBI, AHA, WHF, International Atherosclerosis Society, and International Association for the Study of Obesity. The primary goal of management of the metabolic syndrome is to reduce the risk for CVD and type 2 diabetes. Then the first-line therapy is to reduce the major risk factors for CVD: stop smoking and reduce LDL , blood pressure and glucose levels to the recommended levels. For managing both long- and short-term risk , lifestyle therapies are the first-line interventions to reduce the metabolic risk factors.

50- PREVENTION OF TYPE 2 DIABETES MELLITUS
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The incidence of T2DM is increasing worldwide. It results from genetic predisposition ,behavioral and environmental risk factors. There is strong evidence that modifiable risk factors as obesity and physical inactivity are the main nongenetic determinants of the disease. Prediabetes is an intermediate category between normal tolerance and diabetes. Subjects with prediabetes have an increased risk of T2DM and form an important target group for interventions aimed at preventing diabetes. A number of clinical trials have been performed to examine the effect of lifestyle intervention on prevention of T2DM. Several trials have shown consistent positive results like Da Qing Study , Finnish Prevention Study , DPP , Stop NIDDM , XENDOS, Indian Prevention Study , DREAM study and PiPoO. The main justification for these studies is that it may prevent or postpone the onset of T2DM and its complications. A large body of evidence has accumulated from these studies on the effectiveness of lifestyle measures in the prevention of diabetes. In addition to lifestyle styling
51- RISK MANAGEMENT OF METABOLIC SYNDROME AMONG WORKERS EXPOSED TO THINNER SOLVENT: INTERVENTION STUDY
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Background: It was observed the positive association between the occupational exposure to various organic solvents and the development of dyslipidemia and/or hypertension. The hypothesis of the present study is that exposure to Thinner solvent might be a risk factor for development of metabolic syndrome among obese workers.

Objectives: to assess the prevalence rate of metabolic syndrome among obese workers exposed to Thinner and to intervene by the obesity management program to control the metabolic syndrome.

Subjects and Methods: Case – Control study was conducted. 439 obese workers exposed to Thinner solvent (cases) and 942 obese workers not exposed to Thinner solvent were investigated. Personal data, Occupational history, Medical history, laboratory investigations, body mass index and waist/hip ratio were conducted for each participant. Obesity management program was conducted through 9 months for workers with metabolic syndrome. Also, environmental monitoring was conducted.

Results: 13.4% and 3.9% of cases and controls were diagnosed as metabolic syndrome respectively (RR=3.4 and attributable risk%=70.6). There were statistical significance difference between the cases and the controls as regards impairment of pulmonary functions, hearing acuity, liver and kidney functions. The obesity management program for exposed workers at the end of nine months of follow up revealed decrease in the mean waist circumference from 116.1 ± 0.7 to 101.1 ± 1.1

Conclusion: exposure to permissible level of Thinner solvent might be a risk factor for metabolic syndrome among obese workers. Obesity control might be a risk management measure.

52- INTEGRATED CARE SYSTEM FOR DIABETES MANAGEMENT IN UAE
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Green Crescent Insurance Company had developed the first integrated care system where technology and health care professionals joins hands to support patients diagnosed with diabetes in making informed day to day decision about their disease.

UAE has the highest rate of diabetes among its nationals, one of every two nationals reach the age of 50 will be diabetic before they die. One of every five nationals is diabetic and one in every three is pre-diabetic. The numbers are similar for expats in UAE as the main reason for high incidence is the lifestyle style. Diabetes is a costly disease, the treatment of disease and its complication can create a great financial burden on an individual, his family as well as health system.

The main problem with diabetes is compliance of patients with the treatment and the reason is behind that is simple: a patient with diabetes spent 4 hours a year with the doctor and has to manage the disease by him/herself for the remaining 7800 hours!

However, the healthy diet, regular physical activity and control of blood glucose levels can substantially reduce the risk of developing complications and progress of disease. Unfortunately, most patients fail to do so due to lack of continues effective intervention.

Green Crescent had developed the first integrated care system. The model is patient centric and a complete team of healthcare providers as well as the state of arte technology is utilized to help the patient in making informed day to day decision about their disease.

At the centers of excellence in Dubai and Abu Dhabi the ambassador of care meets and greets the patient and escorts him during this 2 hours journey. The first station is creating a personal electronic health record, followed by a nursing station where vital signs and blood and urine samples are collected, and then the patient meets his doctor for a minimum of one hour. The technology used enables the doctor to see the test results while the patient is at the consultation room, at the end of the consultation both the patient and the doctor will have a treatment plan. Every patient gets a retinal image at the initial visit and necessary intervention is done on the spot when needed. After that the patient spend 30 minutes with his health educator, who will help him to follow the treatment plan and take about life style and health living steps, and also on the diet and ingredients of food.

The last step at the center of excellence is the endorsement of the Bluetooth enabled technology which is important from the US especially for patients. Every patient has his own glucometer which is linked to his mobile(should have a Bluetooth device) and once the patient self measure his sugar level( as regular meters) the results will be send automatically via Bluetooth to a server. This result will be evaluated immediately and this enables early intervention in case the sugar level is high or low.

The continuous measurement and evaluation of blood sugar by Bluetooth enabled glucometer and the direct contact with the health educator by face to face session at the center, phone consultation and group sessions build a trust based relationship between the patient and the health educator. The program is implemented in a form of study protocol and the results will be published after validation.

Funding: MY COMPANY: GREEN CRESCENT INSURANCE CO

53- SIALIC ACID PROFILE IN DIABETIC PATIENTS
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Sialic acid has been recognized to have a strong pathophysiological effect on the development and course of microangiopathy.

The present study included 127 patients age range (4 - 80 years) with diabetes mellitus, they were included 30 patients with insulin depended diabetes mellitus and 97 patients with non-insulin depended diabetes mellitus, within which 32 were newly diagnosed (less than 1 month) and 65 patient of mean diabetic duration (7 ± 4) years.

The study included measurement of fasting serum total sialic acid (STSA), lipid associated sialic acid (LASA), protein associated sialic acid (PASA), and glucose levels. All parameters were significantly increased in diabetic patients compared with normal control subjects.

The results of this study showed that the measurement of serum TSA, LASA, and PASA could become a useful biochemical means to monitor the degree of the diabetic microangiopathy, dependent of the age, sex, and blood glucose, and independent on the duration of the disease.

In this study negative correlation was found between serum TSA and PASA, with blood glucose level, which need more future studies.
uncharacterized clinical cases of obesity. Numerous studies in children and adolescents, have tried to identify candidate genes. At present, the results are not conclusive. Meanwhile, the effects of mutations in the melanocortin-4 receptor gene, for which the obese phenotype varies in the degree of severity among individuals, are now thought to be influenced by one’s environmental surroundings. Molecular approaches have revealed that syndromes previously assumed to be controlled by a single gene are conversely regulated by multiple elements. Animal models and family studies led to the identification of cases of rare monogenic forms of human obesity. Rare Mendelian syndromes as Prader-Willi syndrome and Bardet-Biedl syndrome represent cases of genetically determined obesity. Genome wide linkage and classical candidate gene studies were in general unsuccessful concerning the identification of genes of common obesity. On the other hand, genome-wide association studies (GWAS) were found to be effective. When specific treatments based on recent discoveries become available, genetic testing could help to discriminate different types of obesity that may respond differentially to therapeutic measures.

57 - ROUX-EN-Y GASTRIC BYPASS-ON-VERTICAL BANDED GASTROPLASTY: 8 YEARS EXPERIENCE WITH A MODIFIED GASTRIC BYPASS WHICH ENABLES TRADITIONAL RADIOLOGIC AND ENDOSCOPIC STUDY OF THE FUNCTIONALLY EXCLUDED STOMACH
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2Background
The problem of definitive gastric exclusion after a conventional Gastric Bypass was overcome in 2002 with the technique of Roux-en-Y on Vertical Banded Gastroplasty (RYGB-on-VBG). In the short-term the procedure showed effectiveness, while leaving a gastric-gastric thin passage, which allows the traditional radiography and endoscopy of the bypassed stomach. In this study the outcomes were evaluated after 8 years.

Methods
From June 2002 to June 2010, 320 patients, with mean age 42.0±13.1 years, mean BMI 48.0±8.7 kg/m2 and mean EWL% 94.0±36.6, underwent RYGB-on-VBG via an open approach. The preoperative comorbidity conditions were hypertension (155/48.4%), OSAS (79/24.6%) and type II DM (55/17.1%). The follow-up was scheduled at 6 and 12 months and annually thereafter and consisted of clinical control, x-ray study with barium, and upper endoscopy if needed.

Results
Rapid improvement in weight loss were significant in both term of decrease of BMI (30.9±5.8 and 34.0±7.7 at 2 and 8 years follow-up respectively) and in term of EWL% (68.9±17.0 and 63.4±18.5 at 2 and 8 years follow-up respectively). The percentages resolution of comorbidities were: OSAS 96.2%; type II DM 74.5%; hypertension 40.6%. Early surgical complications were 6 (1.9%) and late were 8 (2.5%). In the follow-up, for every patient the study of the remnant with a barium swallow and/or a upper gastroscopy was possible.

Conclusion
The RYGB-on-VBG enables traditional diagnostic evaluation of the stomach, which is only functionally excluded. Weight loss, resolution of comorbidities and surgical complications of this procedure, were comparable to those after standard RYGB.

58 - HYPOGLYCEMIC POTENTIAL OF CUCURBITA PEPO L. IN ALLOXAN-INDUCED DIABETIC RATS
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This study was designed to evaluate the antihyperglycemic and antiatherogenic effect of hydroalcoholic extracts of Amaranthus caudatus L. (A. caudatus) on regression of atherosclerosis in experimental rabbits. Twenty rabbits were randomly divided into four groups of five each and treated 75 days as follows: Group I: normal diet (ND), Group II: Hypercholesterolemic diet (HCD); Group III and IV: HCD for 45 days and then normal diet and normal diet + A. caudatus (150 mg/kg-day) respectively for an additional 30 days (regression period). Blood samples were collected on days 0, 45, 75 of the study for measurement of biochemical factors. The aorta was removed at the end of the study for assessment of atherosclerotic plaques. In regression period dietary use of A. caudatus in group IV significantly decreased total cholesterol, triglyceride, LDL-cholesterol, apolipoproteinB(apoB), malondialdehyde (MDA), as well as atherosclerosis index (AI) and fibrinogen while apolipoproteinA(apoA) was significantly increased compared to group III.
The atherosclerotic area was significantly decreased in group IV, whereas, the animals that in regression but rather progression of atherosclerosis. This results thus suggest that hydroalcoholic of D-glucose. Glucose-treated cultures showed an expression in osteoblasts, primary osteoblast of heterocyclic compounds that have been described as a key regulator of the HDL uptake by the liver, and also in the enhancement of the HDL cholesterol mediated - Reverse Cholesterol Transport (RCT). We report here the impact on the HDL metabolism and prevention of atherosclerosis of heterocyclic compounds that have been designed as orally active P2Y13 agonists. Agonists have been designed by QSAR and hits have been selected based on their specific binding and activity in 1321N1 cells expressing P2Y13 receptors. Potential leads were selected based on their propensity to stimulate the ‘H-Cholesterol- labelled HDL uptake in vitro on mouse and human hepatocytes. Specificity of the uptake was confirmed using anti-sense P2Y13 RNA probe. The proof of concept was demonstrated in C57BL6/J mice by increase in bile acids, bile cholesterol and bile phospholipids secretions into the gallbladder at doses as low as 0.03 mg/kg. The cholesterol elimination was associated with decrease in non-esterified cholesterol levels in the plasma. Furthermore, a 2-week treatment in an apoE- mice flow cessation model (a model of atherosclerotic lesions), our P2Y13 agonists significantly improve RCT in vivo, which is illustrated not only by the bile secretion increase, but also by the inhibitory effect on the atherosclerotic plaque progression.

In conclusion, our newly designed series of P2Y13 agonists significantly improve RCT in vivo, which is illustrated not only by the bile secretion increase, but also by the inhibitory effect on the atherosclerotic plaque progression.
OBJECTIVE: To assess the prevalence of obesity and central obesity in a rural Bangladeshi population and their associations with selected co-morbidities, including diabetes, hypertension and dyslipidaemia.

DESIGN: A population-based cross-sectional survey in a rural Bangladeshi community.

SUBJECTS: Two thousand two hundred and forty-six men and women aged over 20 years residing in the rural community, excluding pregnant women.

MEASUREMENTS: According to WHO guidelines for Asian population, obesity for men and women was defined as BMI 23-24.9 kg/m². Obesity was defined as BMI ≥25 kg/m² for Asian population, obesity for men and women was defined as BMI > or =25 kg/m².

RESULTS: The prevalence of obesity in this population was at high 26% (27% and 24.3% in women and men, respectively). Central obesity was more prevalent among women (77.9% compared to 57.2% in women). After adjusting for the effects of age, sex, smoking and each other, obesity and central obesity were found to be significantly associated with diabetes, hypertension, low HDL-cholesterol and elevated triglycerides in separate logistic regression analyses.

CONCLUSION: Obesity and central obesity are prevalent in the rural Bangladeshi population. Their associations with diabetes, hypertension and dyslipidaemia point to a potential rise in cardiovascular disease (CVD). An understanding of the reasons behind the high prevalence of obesity is essential for its prevention as well as for the prevention of the morbidities to which it may lead.
68 - INVERSE RELATIONSHIP BETWEEN HDL-C RASING AND HSCRP REDUCTION IN OLDER PATIENTS TREATED WITH EZETIMIBE/SIMVASTATIN AND ATORVASTATIN

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Background: Little is known regarding relationships between hsCRP and lipoproteins other than LDL-C, particularly HDL-C which has both anti-inflammatory and cholesterol mediating effects. This exploratory analysis assessed associations between hsCRP and lipid factors in a study of older patients (>65 yrs) patients with moderately high/low CVD risk, treated with ezetimibe/simvastatin (E/S) or atorvastatin (A).

Methods: Post-hoc analysis of a multicenter, randomized, doubleblind 12 wk study. Correlations were assessed in 1054 patients with both baseline and 12 wk hsCRP ≤10mg/L, pooled across doses of E/S (10/20, 10/40 mg) and A (10, 20, 40 mg), and pooled E/S+A treatments.

Results: Correlations between baseline levels of hsCRP with LDL-C, non-HDL-C and apoB were weak and non-significant in the E/S and A and pooled E/S+A groups. After 12 wks of treatment these correlations were significantly higher in all groups. In contrast, HDL-C was negatively and significantly correlated with hsCRP in the A and pooled E/S+A groups at baseline and in all groups at 12 wks. Associations between changes in hsCRP and these lipid factors were low but significant for pooled E/S+A, and also for LDL-C and non-HDL-C in the A group and HDL-C in the E/S and A groups.

Conclusions: Relationships between hsCRP and lipid factors were weak at baseline and improved somewhat after treatment in older patients. HDL-C was negatively and consistently correlated with baseline and 12 wk hsCRP levels, as well as with therapy induced changes in HDL-C and hsCRP.

Funding: Merck

69 - RELATIONSHIPS BETWEEN HSCRP REDUCTION AND HDL-C, NON-HDL-C, APO B AND HDL-C IN HYPERLIPIDEMIC PATIENTS TREATED WITH EZETIMIBE/SIMVASTATIN + NIASPAN

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Background: The relationships between hsCRP and lipoproteins other than LDL-C may be important, particularly given the anti-inflammatory functions of HDL-C.

Method: A post-hoc analysis of randomized, double-blind study in type IIa/IIb hyperlipidemic (HL) patients treated with ezetimibe/simvastatin (E/S) + 10/20 mg + extended release niacin (N) to 2 g vs E/S or N for 24 wks, or vs E/S for 64 wks. Correlations between baseline levels of hsCRP and lipids were assessed in patients with baseline, 24 and 64 wk hsCRP levels ≤10mg/L.

Results: Correlations between baseline hsCRP and HDL-C levels were inversely and significantly related; all other baseline correlations were weak and non-significant. At 24 wks, associations between hsCRP and LDL-C and apoB were weak and non-significant in the E/S and A and pooled E/S+A groups. After 12 wks of treatment these correlations were significantly higher in all groups. In contrast, HDL-C was negatively and significantly correlated with hsCRP in the A and pooled E/S+A groups and in all groups at 12 wks. Associations between changes in hsCRP and these lipid factors were low but significant for pooled E/S+A, and also for LDL-C and non-HDL-C in the A group and HDL-C in the E/S and A groups.

Conclusions: Relationships between hsCRP and lipid factors were weak at baseline and improved somewhat after treatment in older patients. HDL-C was negatively and consistently correlated with baseline and 12 wk hsCRP levels, as well as with therapy induced changes in HDL-C and hsCRP.

Funding: Merck and Co., Inc.

70 - ANTI-LIPOLYTIC EFFECTS OF NOVEL NIACIN RECEPTOR (GPR109A) AGONISTS IN RAT AND DOG

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Niacin inhibits adipocyte triglyceride lipolysis, thereby lowering plasma free fatty acids (FFA). Decrease in FFA flux to the liver has been postulated to entrain the beneficial effects of Niacin: reduction of triglycerides, LDL cholesterol, and elevation of HDL cholesterol. However, Niacin also induces cutaneous flushing, limiting patient compliance. A GPCR expressed in adipocytes and macrophages, GPR109A, has been shown to mediate both Niacin induced antilipolysis and cutaneous flushing.

During the course of our research efforts to develop novel ligands of GPR109A, we were able to identify pyranone carboxylic acids as a new class of GPR109A agonists. With these new compounds we demonstrated reduction of intracellular CAMP in 4311 based cell assays as well as inhibition of lipolysis in primary rat and mouse adipocytes, and in vitro differentiated human adipocytes to the same extent as with Niacin.

Oral administration of pyranone carboxylic acids in rat (0.3mg/kg –10mg/kg) and dog (10mg/kg) resulted in an effective reduction of FFA and triglycerides in the plasma. The favourable pharmacokinetic properties of the new compounds were demonstrated with a therapeutic window wide enough to separate FFA reduction from cutaneous flushing in rat. The pharmacological profile of novel pyranone carboxylic acids in rodents and dogs suggests potential advantages over currently available Niacin therapeutics.

Funding: Sanofi-Aventis Deutschland GmbH

71 - OPTIMUM DIET AND CORONARY HEART DISEASE

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Despite improved clinical care, increased public awareness, and widespread use of health innovations, the burden of Coronary Heart Disease (CHD) remains tremendous. CHD caused approximately 1 of every 6 deaths in the U.S. in 2006 and is still the leading cause of death in not only the U.S. but worldwide. Preventive measures that reduce CHD risk factors including nutritional interventions have accounted for half of the mortality decrease. The current American Heart Association (AHA) diet and lifestyle recommendations emphasize a healthful overall dietary pattern high in vegetables and fruits, low-fat and nonfat dairy products, legumes, fish, and lean meat, coupled with food choices that minimize intake of excess energy, saturated fat, trans fat, cholesterol, and salt. Guidelines by the Institute of Medicine and the American Diabetes Association are consistent with AHA’s recommendations. The main aim of this presentation is to review the most current evidence for the prospective association between energy intake, dietary content, types of macronutrients, and dietary patterns in relation to CHD risk, or commonly used risk factor indices for CHD (lipid profile, obesity, inflammation).

72 - IDENTIFICATION OF ADIPOCYTE ANTIGENS THAT ELICIT A HUMORAL IMMUNE RESPONSE IN OBESE QATAR PATIENTS: SERA BY SEROLOGICAL PROTEOME ANALYSIS (SERPA)

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We know that only proteomics can truly address alternative splicing and post-translational modifications, which are seminal events in complex biological processes associated common diseases including obesity. Therefore, proteomics must play a key role in various pathways involved in the adipogenesis. Abnormal or over-expression of a given adipocyte protein in obese subjects may lead to the induction of autoantibodies, which could be revealed by the serological proteome analysis (SERPA) approach. The recent report by Peter et al. [Am J Physiol Regul Integr Comp Physiol 2009] showing the detection of autoantibodies (autoAbs) to MC4R
in obese individuals adds a new dimension to the etiology of obesity. Their finding stems from previous observations, in which their attempts to raise antibodies against the amino terminus region of the human MC4R protein in rats resulted in mild obesity with associated insulin resistance. Taken together, these results suggest the potential clinical importance of screening obese individuals for autoAbs directed against MC4R but also to other satiety factors implicated in energy homeostasis.

Herein, we report the preliminary results of adipocyte SERRA analyses revealing several autoAbs to white and brown adipocyte antigens in the sera of Qatari obese patients. The presence of these autoantibodies in the serum of obese individuals could potentially be used as an early diagnostic marker of obesity, at least in some individuals.

73-RISK FACTORS FOR DIABETES AND ITS COMPLICATIONS IN QATAR
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Introduction: Diabetes is one of the leading chronic diseases worldwide and in Qatar. However, the prevalence of well-known risk factors for diabetes in Qatar is not well understood. We conducted a case-control study with the specific aim of estimating, based on data from outpatients with diabetes in Qatar (cases) and inpatient/outpatient controls, the association between demographic/lifestyle factors and development of diabetes. We further quantified the recognition of complications from diabetes.

Methods: A total of 459 patients with diabetes were recruited from the Hamad Medical Corporation Hospital outpatient adult diabetes clinics and 342 control patients were recruited from various outpatient clinics and inpatient departments at Hamad (years 2006-2008). The association between risk factors of interest and diabetes was evaluated by multivariate logistic regression analysis. Adjusted odds ratios (OR) and 95% confidence intervals (95% CI) are presented.

Results: Qatar national identity was the strongest risk factor for diabetes (OR=3.5; 95% CI=3.0-8.6; P<0.0001), followed by higher monthly values. Our levels, referred to the 50th percentile, presented hypertension, 3.2% had borderline values; about female, 2.3%; about male, 2.2% presented hypertension, 3.3% had borderline values.

74-THE TRENDS OF HYPERTENSION AND ITS RELATIONSHIP TO THE WEIGHT STATUS AMONG TAIWANESE YOUNG ADOLESCENTS
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Background: To evaluate prevalence of hypertension in 1996 and 2006, and examine the relationship between hypertension and weight of Taiwanese young adolescents.

Methods: Two cross-sectional surveys, administered in 1996 and 2006, to junior-high school in Taipei were included. Anthropometric and blood pressure were measured using standard methods, and structured questionnaire was used to collect personal history and lifestyle characteristics. Overweight and obesity are defined based on Taiwan’s DOH criteria and bases pre-hypertension and hypertension on the 90th and 95th percentile distribution of blood pressure of the population of both surveys.

Results: The prevalence of pre-hypertension in 1996 and 2006 increased from 12.0% to 14.4% for boys and decreased from 9.5% to 9.4% for girls. Hypertension increased from 22.8% to 29.7% and 12.5% to 20.7% for both boys and girls, respectively. In 1996, compared to normal young adolescents, the risk of hypertension for overweight was 1.8 times higher for boys and 3.4 times for girls. However, the risk of hypertension for overweight in 2006 was 1.7 times higher for boys and 1.5 times higher for girls compared to normal. Every unit increment of BMI and WC was associated with 17 to 27% and 6 to 11% risk of hypertension in both genders in 1996, and was associated with 9-13% and 4% risk of hypertension among young adolescents in 2006, respectively.

Conclusions: The prevalence of hypertension has increased significantly in young adolescents, especially for overweight. It is necessary to enroll young adolescents in weight management programs to prevent hypertension-related co-morbidities.

75-ITALIAN LIFE-STYLE AND HEALTH-RELATED BEHAVIORS: PREVALENCE OF PEDIATRIC HYPERTENSION IN A YOUNG POPULATION OF TUSCANY
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Background Primary Hypertension, with an estimated prevalence of between 2% and 5%, emerges from a complex inter-play of genetic, environmental, and behavioral factors.

In childhood, hypertension is defined as an average systolic or diastolic BP greater than or equal to the 95th percentile for age and sex, referring to the Task Force tables and the Italian Normal Standards ones. According to literature, at least three separate measurements of BP are needed.6,7

Objectives To determine the prevalence of hypertension in a group of children and adolescents from Tuscany, Italy.

Design, Setting and Participants A group of 711 children and adolescents aged 4 to 17 years (365 boys, 346 girls) was observed between January and December 2009 during the annual well-child visits. We collected data about weight, height, age, SBP and DBP; three measurements were performed at intervals of 2-5 minutes, using a mercury sphygmomanometer.

Results About male, 2.2% presented hypertension, 3.3% had borderline values; about female, 2.3% presented hypertension, 3.2% had borderline values. Our levels, referred to the 50th percentile, were 5-10 mmHg lower than the Task Force BP Tables, and 10-15 mmHg lower with respect to the Italian Normal Standards.

Conclusions In our experience, young population of Tuscany (Italy) presents lower BP values, with consequent lower risk of cardiovascular diseases in adulthood. Various factors are probably responsible for these results, as Mediterranean diet, physical exercise and changes in health-related behaviors.
For normal skeletal growth and development the relationship between cell proliferation and differentiation must be tightly regulated. Various cyclins, cyclin dependent kinases (CDKs) and cyclin dependent kinase inhibitors (CDKIs) have been postulated to play a role in osteoblast proliferation and differentiation. CDK4 is a major player role in the transition of cells from the G0 phase to the S phase. Previous studies showed that CDK4 null (CDK4-/-) mice develop type 1 diabetes associated with stunted growth. These animals also exhibited cataractous osteopenia. We next performed histomorphometric analyses and showed a significant decrease in bone volume and osteoid surface in CDK4-/- compared to WT bones. pQCT analysis also showed a reduction in trabecular bone density in CDK4-/- compared to WT mice. We also examined the expression of osteoblast-related genes and found that these genes were markedly decreased in CDK4-/- mice. We also evaluated the expression of Cyclin D, p27 and p21. Western blot analysis demonstrated a decrease of these proteins in CDK4-/- compared to WT mice. Cell proliferation was measured using BrdU in vivo which was slightly decreased in cells in the periosteum of CDK4-/- compared to WT mice. Expression of ED1 in macrophages/osteoclasts revealed a significant increase in the size and number of the osteoclasts present at the periosteum of CDK4-/- compared with WT mice, suggesting an increase in bone resorption. Our data suggest that CDK4 plays an important role in bone formation/remodeling. Additional studies are being pursued to understand the role of CDK4 and its mechanism of action in osteoblasts/osteoclasts.

77. THE ROLE OF CDK4 IN TYPE 1 DIABETES-INDUCED BONE LOSS
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78. INVESTIGATION OF THE CELLULAR AND MOLECULAR ANTI-INFLAMMATORY RESPONSE IN OBESE INDIVIDUALS SUBJECTED TO A DEFINED EXERCISE PROTOCOL
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80. DECREASED SERUM 25-HYDROXY VITAMIN D AS A CARDIOVASCULAR RISK FACTOR IN TYPE 2 DIABETIC PATIENTS
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Background: Little is known about vitamin D status in subjects with cardiovascular risk. The present study aimed to evaluate the level of 25-OH vitamin D, parathyroid hormone, CRP & fibrinogen in relation to cardiovascular disease in type 2 diabetic patients.

Subjects and Methods: Eighty adult males were divided into:
Group I: 15 apparently healthy volunteers (Controls), Group IIA: 25 diabetic patients without cardiovascular complications (CVC), Group IIB: 25 diabetic patients with CVC, Group III: 15 non diabetic patients with stable ischemic heart disease (IHD).

87- INFLUENCE OF CETP, PPARA, APOE AND APOA POLYMORPHISMS ON HDL-C, APOAI, LPAI AND LPAI:AII CONCENTRATIONS: THE PRIME STUDY
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Abstract
The plasma level of HDL-Cholesterol (HDL-C) is known to be inversely associated with cardiovascular risk. However, besides lifestyle, gene polymorphism may influence the HDL-C concentration.

The aim of this study was to investigate the possibility of interactions between CETP, PPARA, APOE and APOAI polymorphisms and HDL-C, apoA1, LpAI and LpAI:AII in a sample selected from the PRIME study population who remained free of cardiovascular events over five years' follow-up.

Methods: Healthy individuals (857) were randomly selected for genotyping the PRIME Study subjects. The population was selected so as to provide 25% of subjects in the lowest tertile of HDL-C (≥8 mg/dL) in the whole PRIME Study sample, 25% of subjects in the highest tertile of HDL-C (>73 mg/dL) and 50% of subjects in the medium tertile of HDL-C (28-73 mg/dL). Genotypes were determined by TaqMan based allelic discrimination method.

Results: The CETP A373P rare allele c was less frequent in the group of subjects with high HDL-C, apoA1, LpAI and LpAI:AII concentrations. ApoAI and LpAI were also found higher in the presence of the c2 allele coding for APOE. The effect of the CETP A373P rare allele c on HDL-C was independent of all tested parameters except triglycerides.

Conclusions: The respective effect of these polymorphisms and triglycerides on cardiovascular risk should be evaluated prospectively.
81- THE RELATION BETWEEN SERUM LEPTIN, HYPERTENSION, GESTATIONAL DIABETES AND WEIGHT GAIN IN PREGNANT FEMALES

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Background: leptin production is dysregulated in several pathological conditions of pregnancy. The aim of the present study was to investigate the relationship between serum leptin level in early pregnancy and some pregnancy-associated complications as hypertension and gestational diabetes & weight gain.

Subjects and Methods: 205 pregnant females were divided into three groups according to their (BMI): 81 normal weight, 65 overweight and 59 obese females. 35 non pregnant healthy females of ideal BMI as controls. The study included the initial visit & three follow ups visits till full term. In each visit all pregnant females had clinical examination, especially for estimation of weight, calculation of weight gain and blood pressure. Complete urine analysis and estimation of 24hours urinary protein, FBS level and determination of OGTT (if needed) were also performed. Estimation of serum leptin level was done for both the controls and three groups of pregnant females at the 2nd trimester (16-20 weeks).

Results: Internal serum leptin levels in the three groups of pregnant females were significantly higher than that in controls. In the pregnant groups serum leptin was significantly higher in those suffering from gestational diabetes, hypertension or preeclampsia. Maternal serum leptin levels showed significant positive correlation with initial and full term BMI, systolic and diastolic B.P. as well as serum glucose levels at the 3rd follow up visit.

Conclusion: Hyperleptinemia in mid pregnancy can be used as a predictor for the development of pregnancy-induced hypertension later on. Hyperleptinemia correlates with gestational diabetes, especially among those overweight or obese.

82- CARdiovascular risk REDUCTION AT the Workplace: THE ISRAELI EXPERIENCE

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Objective: Our objective was to study the prevalence of unrecognized diabetes and pre-diabetes in patients with ACS as determined by elevated Hemoglobin A1c (HbA1c) level, fasting plasma glucose (FPG) and or random plasma glucose (RPG). The lipid profile of these females was also studied.

Design and results: A hospital based prospective study that included 583 patients, without previous history of Diabetes Mellitus (DM), who were admitted to the coronary care unit (CCU) with diagnosis of ACS. Both Random (RPG), and Fasting Plasma Glucose (FPG) levels were checked in all patients. DM was diagnosed according to latest International Criteria. To eliminate the effect of stress induced hyperglycemia in the setting of ACS, we measured HbA1c in all patients with high RPG and FPG. Accordingly, patients were classified into frank DM, Pre-diabetes, non-diabetes and stress hyperglycemia. The use of HbA1c in the diagnosis of DM was recommended by latest ADA guidelines, 2010.

The mean age of the studied patients was 51 years and 81.3 % were males. 123 (21.1%) were discovered to have frank DM that was unrecognized before. Another 82 (14.1%) had pre-diabetes, while 57 (9.8%) had stress hyperglycemia. The rest (321 patients, 55.1%) were non-diabetics. The mean FPG among diabetics, pre-diabetics and non-diabetics were 10.9, 6.7 and 5.8 mmol/l respectively. The mean HbA1c in these three groups were 8.7%, 6.9% and 5.9% respectively. There was no significant difference between the four groups with regard to total cholesterol, low and high density lipoprotein levels. However, Triglyceride levels were significantly higher in diabetics (2.2±1.5 mmol/l), compared to (2.1±1.5) in pre-diabetics and (1.8±1.0) in non-diabetics.

With regards to type of ACS, there was a significant prevalence of ST-Elevation (STEMI) among non-diabetic group (50.8 %) compared to (30.9%) in diabetic group. STEMI was reported in only 18.45% in pre-diabetic group. Unstable Angina was also significantly higher among non-diabetics (71.79%) compared with diabetics (16.02%) and pre-diabetics (12.1%). The occurrence of Non-STEMI was not significantly different between the three groups.

Conclusion: In patients admitted with ACS who did not have previous diagnosis of DM, we found that nearly half had abnormal glucose metabolism, and nearly half of these had frank DM that was not recognized before. Pre-diabetes and stress hyperglycemia were
albeit relatively common. The recent adoption of HbA1c in the diagnosis of DM provided an easy and less time consuming test to differentiate between diabetics, non-diabetics and stress hyperglycemia. These findings might have an important impact on the short and long term prognosis and management of these patients.

85- RELATIONSHIP BETWEEN CIRCULATING INFLAMMATORY MARKERS AND METABOLIC SYNDROME IN IRANIAN POPULATION: FINDINGS FROM ISFAHAN HEALTHY HEART PROGRAM Mojgan Gharipour1, Roya Keilashl2.1Research, Isfahan Healthy Heart Program, Isfahan, Iran; 2Research, Isfahan H Cardiovascular research center, Isfahan, Iran

Objectives: This study was conducted to investigate the associations between the metabolic syndrome (MetS) and inflammatory markers.

Methods: A cross-sectional population-based survey (Isfahan Healthy Heart Program) examined a random sample of adults living in central part of Iran. An independent random sample was selected by a random multi-stage cluster sampling method. In addition to physical examination and blood sampling, data regarding the demographic characteristic were obtained. The associations between MetS and circulating high sensitivity C-reactive protein (CRP) and white blood cells (WBC) were assessed. MetS was defined using the criteria proposed by the National Cholesterol Education Program Adult Treatment Panel III (ATP-III).

Results: Significant increased WBC counts and hs-CRP levels were observed in women with MetS. WBC and hs-CRP levels linearly deteriorated with increasing number of MetS components (all p trend <0.05). Finally, adjusted odds ratios (ORs) for the risk of MetS by increase/decrease in these inflammatory markers were calculated by multivariable logistic regression analyses. In terms of changes in inflammation markers, in men, the adjusted ORs (95% confidence interval) were 7.48 (7.18-7.78) for WBC, 2.85 (2.46-3.29) for CRP, whereas corresponding adjusted ORs (95% CI) in women were 7.68 (7.27-8.09) and 2.70 (2.23-3.33), respectively.

Conclusions: Serum WBC counts were found to be powerfully associated with MetS in both sexes. This study shows that inflammatory response is associated with MetS in the Iranian population.

86- AGE-RELATED EFFECTS OF NIFEDIPINE ON REMOVAL OF CHYLOMICRON REMNANTS IN MILD HYPERTENSION Itamar Grosskopf1.1Medicine, Tel Aviv Medical Center, Tel Aviv, Israel

Essential hypertension is often accompanied by metabolic abnormalities believed to predispose to advanced atherosclerosis. We evaluated the effect of blood pressure-lowering nifedipine on the metabolism of postprandial lipoproteins in 16 patients with mild hypertension who were given a Vitamin A--fat load test meal before and during nifedipine treatment. Treatment reduced the mean systolic and diastolic blood pressures by 19% and 18%, respectively (p<0.001). Fasting total cholesterol and LDL-cholesterol plasma levels remained unchanged. Triglycerides decreased by 11% (p=0.04) and HDL-cholesterol increased by 8% (p=0.04). Lipoprotein lipase and hepatic lipase activity in postheparin plasma increased by 35% (p=0.04) and 19% (p=0.005), respectively. Postprandial lipoprotein metabolism of the entire cohort remained unaffected by treatment. Before treatment participants older than 60 years had delayed clearance of postprandial lipoproteins in chylomicrons (S>1000) and chylomicron-reminants (S<1000) fractions relative to participants younger than 60 years, findings related to differences in insulin sensitivity. Nifedipine accelerated the clearance of chylomicron remnants in the older participants by 22% (p=0.016), bringing its rate to the level in the younger participants, thus, apparently corrected a metabolic defect in chylomicron remnants catabolism. This was related to increased insulin sensitivity as well as lipoprotein and hepatic lipase activity. In conclusion, these data indicate that nifedipine favorably affects insulin sensitivity and postprandial lipoproteins catabolism in older hypertensive individuals, possibly bestowing protection against coronary artery disease.

87- PITAVASTATIN HAS NO DETRIMENTAL LONG-TERM EFFECT ON RENAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS (DM) Janusz Gumpricht1,2.1Department of Internal Diseases, Diabetology and Nephrology, Medical University of Silesia, Zabrze, Poland; 2Scientific Affairs, Kowa Research Europe, Wokingham, United Kingdom

Aims: Results of the PLANET trials investigating the effects of statins on renal function found long-term atorvastatin protective and rosuvastatin unprotected and possibly even harmful in diabetic and nondiabetic patients. The present study assessed whether the effects of long-term pitavastatin treatment on renal function, expressed as estimated glomerular filtration rate (eGFR) value, in patients with type 2 DM would be similar to those of atorvastatin.

Methods: NK-104-310 was a 44-week extension study in which patients with type 2 DM and mixed (combined) dyslipidemia continued pitavastatin 4 mg (n=143) or atorvastatin 20 mg (n=64) treatment from a core 12-week, randomized, double-blind trial (NK-104-305). This was a post hoc analysis that assessed within-group changes in eGFR (MDRD formula based on serum creatinine, age, sex, and race) from baseline to 56 weeks using Student’s paired t-test, and changes in the proportion of patients with chronic kidney disease (CKD, defined as eGFR<60) using McNemar’s test.

Results: At 56 weeks, no statistically significant mean change from baseline in eGFR (mean±SD, mL/min/1.73 m2) was observed with either pitavastatin (+1.8±14.0, p=0.125) or atorvastatin (+1.5±9.0, p=0.182). The proportion of patients with CKD (eGFR<60) decreased from 19.3% at baseline to 15.0% after 56 weeks of pitavastatin (p=0.180 vs baseline) but was unchanged with atorvastatin (15.0% at both timepoints).

Conclusions: Long-term treatment with pitavastatin 4 mg or atorvastatin 20 mg had no detrimental effect on renal function in patients with type 2 DM and mixed (combined) dyslipidemia.

Funding: These studies were supported by Kowa Research Europe, UK.

88- THE NUMBER OF THE COMPONENTS OF METABOLIC SYNDROME IS IN RELATIONSHIP WITH LOW LEVEL INFLAMMATION AND WITH TEETH LOSS IN CARDIO-CEREBROVASCULAR DISEASE Ioan Axente Gutiu1; Laurentiu Gutiu2; Flavian St Radulescu2.1Medical Emergencies, Carol Davila University of Medicine and Pharmacy and Bucharest, Bucharest, Romania; 2Department of Neurology, Military Emergency Hospitals Hospital, Bucharest, Romania, Bucharest, Romania; 3Drug Industry Dpt, Carol Davila University of Medicine and Pharmacy, Bucharest, Romania

Objectives: We aim to study possible relationships between low level inflammation syndrome, dental state appreciated by teeth loss (TL), and components of metabolic syndrome (NCEP-III) using actual knowledge in the field of atherosclerosis.

Methods: In a cross-sectional study we analyzed 350 patients (mean age 55+/−12 years, 173 male - 49%) with cardio-cerebrovascular disease, coronary disease - 200 (57%), stroke - 129 (37%), ischemic cardiomyopathy - 21 (6%). We compared the presence of inflammatory syndrome and TL in groups made up from the progressive components of MoS (from 0 to 5 components). We appreciated the no-specific infection by serum fibrinogen (fF), CRP, BSR, leukocytes, number of teeth loss (TL).

Results: Partition of inflammation in groups made up of MoS components was: no components 10 (3%), only 1 component 55 (16%), 2 -77 (22%), 3-119 (34%), 4-67 (19%), 5 - 22 (19%). In no component group we found: fF=318.6±45.3 mg/l, BSR =15.5+-10.9 mm/1 h, increased CRP level in 6 patients, leukocytes=6272+/-1250, TL number=4.3+/-2.7. In 5 components group: fF=389.3+/-60.1 mg/l (P=0.02 versus no component group), BSR=25.2+/-10.2 mm/1 h (P=0.08), increased CRP in 9 patients (P=0.57), leukocytes=12578+/-2205 (P=0.01), TL=10.8+/-8.7 (P=0.046). In other groups we found intermediate differences.

Conclusions: We found that the number of MoS components is accompanied by an inflammatory syndrome. We can speculate considering intervention of visceral obesity (cytokines secretion), low level of HDL-cholesterol, etc. We sustain the necessity for routine testing of all analyzed inflammatory markers including missing teeth for a correct appreciation of patients and for treatment.

89- BMI ESTIMATION FROM WAIST MEASUREMENT, NECK CIRCUMFERENCE, MID-UPPER ARM CIRCUMFERENCE AND EPWORTH SLEEPINESS SCALE Anwen R. Marshall1; Nadim Haboubi1; PAPEN, ESPEN; Sian Jones2.14th year medical student, Llangammarch Wells, United Kingdom; 24th year medical student, Llangammarch Wells, United Kingdom; 3 Adult medicine and Gastroenterology, Abergavenny, United Kingdom; 4Nutrition and Dietetics, Newport, United Kingdom

Objectives: 1) To investigate whether waist, mid-arm and neck circumference, and the Epworth sleepiness scale can be used to accurately estimate BMI,
2) To determine whether patients have a preference between anthropometric measuring or weighing. 

**Method:** Data was collected from 74 obese patients, recruited via Blaenau Gwent weight management clinic and 28 participants of a control group (BMI 18-30). Data collected included waist and height measurement, weight, mid-upper arm (MUAC) and neck circumference (NC), Epworth sleepiness score and any preference indicated when asked, between anthropometric measurement and traditional weighing to estimate BMI. Both groups were separated into sex. Using formulaic rearrangement and trend analysis an equation (the H-M formula) was devised to estimate BMI for both groups of participants using the data collected minus weight. This estimation was then compared against BMI calculated in the traditional method.

**Results:** BMI can be accurately estimated from waist, MUAC and NC collectively using the sex adjusted H-M formula. BMI did not correlate with Epworth sleepiness scores. Most patients have no preference as to whether they are weighed or body measurements taken.

**Conclusions:** The H-M formula is a cost-effective, quick, portable, non-invasive method to estimate BMI that can be used in patients who are unable or unwilling to be measured in the traditional way.

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**92: PITAVASTATIN HAS A LOW RISK OF DRUG-DRUG INTERACTIONS (DDI): PHARMACOKINETIC STUDIES IN COMBINATION WITH MODULATORS OF CYTOCHROME P450 (CYP) ISOENZYMES AND OATP**

**Neil Hounslow**

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**Aims:** Adverse drug reactions with statins often involve DDIs at the level of CYP isoenzymes and/or organic anion transporting polypeptides (OATP). Pitavastatin is minimally metabolized via CYP but in vitro studies show that hepatic transport is by multiple transporters including OATP1B1 and 1B3. A programme of studies assessing DDIs between pitavastatin and modulators of CYP and OATP has been conducted.

**Methods:** In vitro studies identified the OATP1B1 inhibitors gemfibrozil, azatazarav/indinavir, rifampicin, clarithromycin/erythromycin and ciclosporin as sources of potential DDIs with pitavastatin. Single- or multiple-dose studies conducted in healthy volunteers evaluated the pharmacokinetics of pitavastatin 2 or 4 mg once daily when co-administered with these and other drugs that interact with CYP and OATP. Geometric mean ratios (test:comparator) for pitavastatin Cmax and AUC were calculated; a >2-fold increase in exposure was considered potentially clinically relevant.

**Results:** There were no clinically relevant interactions for pitavastatin when co-administered with bezafibrate, fenofibrate or enalapril (OATP substrates); ezetimibe, warfarin or dioxigen (CYP substrates); grapefruit juice or itraconazole (CYP3A4 inhibitors); azatazanav, gemfibrozil or rifampicin (OATP1B1 inhibitors). Increases of >2-fold in pitavastatin Cmax and AUC were seen during co-administration with drugs that inhibit multiple hepatic transporters, such as erythromycin (3.6- and 2.8-fold increases, respectively), and ciclosporin (6.6- and 4.6-fold increases, respectively).

**Conclusions:** Pitavastatin has a distinct metabolic profile, which may reduce the risk of DDIs compared with established statins. Studies in healthy volunteers show that inhibitors of OATP1B1 alone are not associated with potentially clinically relevant DDIs, but inhibitors of multiple transporters may be. Funding: These studies were supported by Kowa Company Ltd, Japan and Kowa Research Europe, UK.
93- CARDIOVASCULAR RISK FACTORS: SCREENING, PHYSICAL ACTIVITY AMONG DUBAI POPULATION PREVALENCE AND SOME ASSOCIATED FACTORS

Hamid Y. Hussain

 objectives: the study aims to study the prevalence of physical activities among Dubai population and the effect of some associated factors, it is also aiming to assess the knowledge, practice, attitudes of Dubai population

Methodology: a cross sectional survey has been carried out upon representative random sample of adult Dubai population age rang (16-65) years.

Results: the study revealed that about 23.6% of the total sample showed good knowledge about the importance of physical activity and 86.6% showed positive attitude towards practicing physical activities, the study showed that about 34.6% of the total sample are practicing physical activity regularly (prevalence rate among Dubai adult population), it was apparent that practicing of physical activity is significantly higher among emirates in comparison with expatriates, highly educated individuals (university and above), and high income people (10000 ED and above), the study showed that the main reason behind non practicing physical activity were lack of time 47.3%, tiredness and exhaustion 20.1%. UN availability of suitable places 17.3%, the multiple logistic regression analysis showed that there are four factors significantly affect on practicing of physical activities in Dubai, they are, Nationality odds ratio was 1.49 among Emirates compared to expatriates, Educational level, odds ratio was 2.00 among higher education compared with low education, Awareness and knowledge factor Odds Ration 3.49 and income factor showed higher practicing of physical activity among individuals with high income (10000 and above) compared to low income less than 10000 ED.

94- SMOKING CESSATION OVERVIEW

Abdurezag Ahmed Kadeshi

Tobacco addiction is the leading avoidable cause of disease and premature death in the world. Thirty percent of all heart disease deaths are caused by cigarette smoking. People who use tobacco are more likely to have heart attacks, high blood pressure, aortic aneurism and strokes. Second-hand smoke is a much greater problem than many people realize. The mixture of exhaled smoke contains more than 4000 substances, more than 40 of which are known to cause cancer in humans and animals. Waterpipe (Sheesha) use appears to be increasing in the Middle East region. It is especially apparent among youth and University students. This is due to misconceptions such as: waterpipe smoke contains less nicotine than that of cigarettes that the water in the sheesha filters out all the toxins and that it is less harmful to the throat and the respiratory tract than cigarette smoking.

Why do smokers continue to smoke? It is because of nicotine. Nicotine is the chemical in tobacco that keeps smokers smoking. It can be as addictive as cocaine and heroin. It increases the release of dopamine which makes the smoker feel good. Tobacco dependence involves psychological as well as physical factors. Studies have shown that smokers must deal with both the physical and psychological dependence for the quitting process to be successful.

Pharmacotherapy includes three main medications: Nicotine replacement therapy, Bupropion SR, and Varenicline. Each at least doubles quit rates vs. placebo. Cessation rates are higher when counseling is added to drug treatment.

95- THE EFFECT OF LONG STUDYING HOURS AND DIFFERENT LIFESTYLES ON OBESITY AMONG UNIVERSITY STUDENTS

Zainab Azzi Ameen Al Mudamgha, Fatima Khalili

The study showed that the main reason behind not practicing physical activities among Dubai population are age rang, graduate and high income people (10000 ED and above), educated individuals (university and above), and high income people (10000 ED and above)

Results: a logistic regression analysis showed that there are four factors significantly affect on practicing of physical activity among students. The aim of the research is to find out whether stressful long studying hours cause obesity in both male and female university students.

A quantitative randomized method in form of surveys was distributed to 105 university students. The students answered a Questionnaire form upon studying hours, eating behaviors, life style, stress, sleeping patterns, physical activity & others. In addition to the measurement of Mid Arm Circumference, Waist circumference and Body Mass Index. They were grouped into 3 groups; obese, normal weight, and normal groups.

Simple mean T-test method and descriptive statistics was applied. It was found that there is a significant effect of long studying hours on normal weighted students and not the obese and over weighted ones.

There was no significant correlation between BMI and number of hours the students spend in the university, but there was a significant correlation between BMI and studying hours per day in opposite direction. Moreover, the long studying hours affected the normal group more than the obese or over weighted ones.

This study concluded that the highest percentage for obesity rising rates was for the different life styles and hereditary causes but not long studying hours.

96- EFFECTS OF PITAVASTATIN ON HIGH DENSITY LIPOPROTEIN CHOLESTEROL, OTHER LIPOPROTEIN PROFILES AND CHOLESTEROL ESTER TRANSFER PROTEIN IN PATIENTS WITH METABOLIC SYNDROME

Sang Hyun Kim1; Hyang Lim Lee2, Hyun Jae Kang2, Hyo Soo Kim2

Objective: Pitavastatin increased high density lipoprotein cholesterol (HDL-C) level by 5-10%. But in some patients, HDL-cholesterol level decreased with statin. This study was designed to investigate the effect of pitavastatin on HDL-C level, predictive factors of HDL-C increase and its association with cholesterol ester transfer protein (CETP) in patients with metabolic syndrome.

Methods: This was mono-arm study with pitavastatin in patients with metabolic syndrome. After 4 weeks’ therapeutic lifestyle change, patients received pitavastatin 2mg/day for 8 weeks. Primary parameter was change of HDL-C level after 8 weeks’ treatment. Secondary objectives were changes of other lipoproteins, apolipoprotein B/A1, high sensitivity C-reactive protein (hsCRP) and CETP.

Results: 66 patients were screened and 63 patients (59.4 years of age, male 38.9%) were treated. After 8 weeks’ pitavastatin treatment, HDL cholesterol increased 5.4% from mean 41.5 to 43.5 mg/dL (p=0.037). Pitavastatin significantly decreased LDL cholesterol by 38.8%, total cholesterol by 26.1%, apolipoprotein B/A1 ratio by 36%, hsCRP level decreased insignificantly with treatment. CETP decreased 26.3% with treatment, but CETP increase was not associated with HDL-C increase. Predictive factors for HDL-C increase were male, absence of diabetes, BMI < 30 kg/m², old age.

Conclusion: Pitavastatin significantly increased HDL-C, decreased total cholesterol, LDL-C, triglyceride levels, apolipoprotein B/A1 ratio, CETP in patients with metabolic syndrome. CETP change was not associated with HDL-C increase in this study.

97- METABOLIC DISORDERS IN PATIENTS WITH RHEUMATOID ARTHRITIS

G. I. Lysenko1, L. Ya. Babynina1, L.V. Khimion1, I.V. Klymas1

Objective: Many patients with rheumatic disease characterized by pronounced inflammation. Systemic chronic inflammation in patients with
rheumatoid arthritis defines a high risk of developing metabolic disorders.

**Objective:** To determine the frequency of metabolic disorders of lipids and carbohydrates in patients with rheumatoid arthritis.

**Materials and methods:** 62 patients with RA (52 women, 10 men). The average age of patients 47.7 years. Average disease duration 7.6 years, 20 healthy subjects appropriate for age and gender as a control group. All patients were observed and treated in the Kiev Regional Hospital. In studies not included patients with established markers of viral hepatitis B, C, patients who abuse alcohol. All patients for the diagnosis of metabolic disorders were determined: body mass index, waist size, lipid metabolism, fasting blood glucose, fasting blood insulin, HOMA index, blood pressure.

**Results:** In RA patients BMI>30 kg/m² met in 37.2% in the control group-6.2% (p<0.05), abdominal obesity defined by 58.3% and 29.3% in group control (p<0.05). Lipid metabolism: total cholesterol-6.43±1.44, HDL cholesterol-1.62±0.36, LDL cholesterol-2.98±0.74, VLDL cholesterol-0.79±0.32, triglycerides-2.35±0.48 in patients with RA and total cholesterol-4.82±0.33, HDL cholesterol-1.66±0.20, LDL cholesterol-2.24±0.33, VLDL cholesterol-0.42±0.15, triglycerides-1.12±0.22 in control group (p<0.05). Fasting blood glucose-5.6 mmol/L in 30.65%, fasting blood insulin - 23 mC/l/ml in 8.06%, index HOMA-4.3 in 21% of RA patients in the control group these parameters within the normal range (p<0.05).

**Conclusions:** Disorders metabolism of lipids and carbohydrates have a high prevalence among patients with RA. In 37.1% patients with RA met three or more characteristics according to NCEP criteria can be estimated as the metabolic syndrome.

98- CLINICAL FACTORS RELATED TO THE SIZE OF SYNDROME.

Jun Hong Lee

**Objective:** To investigate clinical factors related to carotid arterial stenosis, including intracranial arterial stenosis and peripheral arterial disease which reflects advanced atherosclerosis.

**Methods:** Acute stroke patients whose stroke onset were within 1 week when admitted at the National Health Insurance Corporation Ilsan Hospital from January 2009 to December 2009 with available carotid ultrasound study, transcranial Doppler(TCD) examination and ankle-brachial indexes(ABI) formed the analysis cohorts. Retrospective review was performed.

**Results:** A total of 304 patients were included during that period. By duplex ultrasound, common/ internal carotid arteries are examined and the greatest diameter of plaques are recorded. 3 groups of carotid arterial plaques are defined: diameter is less than 2mm (12 patients, 37%), 2-4mm (174 patients, 57%) and greater than 4mm (18 patients, 6%). As the size of carotid arterial plaques increased, ABI is decreased (p<0.000) and the number of intracranial arterial stenosis is increased (p=0.008). Age, diabietic, male patients are increased (p=0.000, P=0.047, P=0.004) and smoking history showed tendency of increase (p=0.057) as diameter of carotid arterial plaque increase. However hypertension, total/HDL cholesterol, triglyceride and past stroke history are not correlated with carotid arterial stenosis.

**Conclusions:** Among the acute stroke patients, more than a half of them have carotid arterial plaque which diameters are greater than 2mm and these patients tend to have a higher burden of advanced atherosclerosis as evidenced by a higher prevalence of diabetes, intracranial arterial stenosis and peripheral arterial occlusive disease.

99- BLOOD REDUCTION IN PATIENTS WITH BMI>30.

Fedele Lembo1; Antonella Campanale1; Domenico Parisi1; Aurelio Portincasa1

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**BACKGROUND:** Gigantomastia is due to a significant increase in glandular and/or fat with alteration of shape, volume and position of breast, difficult breastfeeding,CAC sensitivity reduction. Also there are kyphosis with consequent lordosis, scoliosis, irritation of inflammatory fold, reduction of sex appeal, difficulty in clothing and physical activity, more pronounced in obese patients (BMI> 30). The Authors present their experience in “inferior-central pedicle breast reduction” performed in obese patients.

**METHODS:** From January 2001 to January 2010 were performed 153 breast reductions; of these 37 with infero-central pedicle in patients with gigantomastia (Volume >1000 g), BMI>30, average distance jugular-CAC: 33.2 cm (28-37.5), mean age 48±7.6 years, more than a half were negative for breast disease, no smokers. Average amount of glandular tissue removed: 743 g (375-1800). The areola was raised by an average of 9 cm (7 - 13).

**RESULTS:** All patients satisfied. No major complication. Observed: 1 hematoma, 3 wound dehiscence and 4 liponecrosis. Average hospitalization time was 3.84 days (3-5). Average time to complete healing was 20.4 days (15-83). Mean VAS was: 8.40 (5.8-10), in all cases marked improvement in CAC sensitivity. Obesity increased the occurrence of complications compared to patients with BMI<30, with increase of 2% in time of hospitalization and healing and 8% in secondary modeling (liposuction, scar revision, etc.).

**CONCLUSIONS:** Authors believe that the “inferior-central pedicle technique” should be regarded as the best option in breast reduction in patients with BMI>30 for versatility, safety and benefits: reduced complications, increased sensitivity of breast, breastfeeding can, aesthetically pleasing results, patients satisfaction.

100- ROLE OF THE PARAOXONASE1 (PON1) IN THE ANTI-INFLAMMATORY PROPERTIES OF HDL AGAINST ATHEROSCLEROSIS.

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Atherosclerosis is an inflammatory disease, not merely the passive accumulation of lipids within artery walls. Paraoxonase 1 (PON1) has been proposed to prevent the formation of oxidized LDL and as an important contributor of the anti-inflammatory activities of HDL. However, the mechanism by which PON1 exert its anti-inflammatory effect is not established yet.

**Objective:** The aim of this study was to evaluate the capacity of purified PON1 to prevent the pro-inflammatory effect of oxidised phospholipids.

**Methods:** PON1 was purified from plasma of healthy donors. LDL oxidation was initiated by incubation with copper ions, and monitored by the measurement of conjugated diene formation. The lypso phosphatidylcholine (LysoPC) formation was analysed by HPLC with an evaporation light scattering detector (ELSD). The ICAM-1 expression by Ehy926 cells was determined by flow cytometry.

**Results:** Purified PON1 significantly inhibited copper-induced oxidation of LDL and HDL (60.5% and 77.7% reduction, respectively, as measured by conjugated dienes formation) and reduced the formation of lysophosphatidylcholine (LysoPC). However, incubation of PON1 with oxidized LDL (oxLDL) contributed to a significant formation of Lys-PC. The opposite effect was observed when PON1 was added to oxHDL. Measurement of the expression of ICAM-1 in Ehy926 cells confirmed that PON1 displayed a pro-inflammatory effect in presence of oxLDL. In contrast, an anti-inflammatory effect of ICAM-1 expression was observed in presence of oxHDL and PON1 (50 μg/ml), as compared to oxHDL in the absence of PON1.

**Conclusion:** PON1 presents an anti-inflammatory effect. However this anti-inflammatory effect was dependent to the association of PON1 to HDL.

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**Aim:** To determine cardiovascular disease (CVD) and diabetes incidence rate in one of Syria regions, the overweight/obesity prevalence, and their association with dietary behaviors in Syria and Eastern Mediterranean Region (EMR).

**Methods:** The CVD and diabetes incidence data were collected in Quneitra region of Syria. The WHO database were analyzed for 2005-2010 (Syria, EMR): overweight/obesity (OW&B) – BMI>25 kg/m² and obesity prevalence (OB%, BMI>30 kg/m²). Dietary patterns were derived from the WHO database for 1971-2001 (Syria): total dietary energy supply (DES, cal/day) and DES for food groups.

**Results:** among Quneitra population the CVD incidence rate is 5.5 per 1,000 per January–October 2010 (males – 52.1%, females – 47.9%), diabetes – 11.8 per 1,000 (males – 60.6%, females – 39.4%). Among males OW&B was 2005-2010 increased by 4.1% (from 48.4% to 52.5%) and is now above average EMR level (44.2%); females – increased by 4.2%, got 59.6% and is now above average...
102- OBESITY IN THE QATARI POPULATION: PUBLIC HEALTH AND GENOMIC PERSPECTIVES

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Obesity, diabetes type II and cardio-vascular diseases have assumed epidemic proportions in most industrialized countries. Particularly important is the exceptionally high prevalence of obesity and diabetes type II in the Qatari population. We intend to generate a prioritized panel of risk factors, genes and molecular pathways associated with obesity in Qatar. The study focuses on defining the epidemiological factors associated with obesity in the Qatari population. A specific effort will be deployed to define the biology of the white and brown adipose tissues of obese Qatari and compare with healthy non-obese individuals using genomic and proteomics high-throughput technologies including microarray and massive parallel sequencing technologies. Herein, we report on the epidemiology of obesity in the State of Qatar, and present the preliminary results of the effect of the obesity associated - Single Nucleotide Polymorphism (SNPs), recently identified by several Genome Wide Association Studies, in the risk of developing obesity in the Qatari population.

The study findings will advance our epidemiological and genomic understanding of the disease, and expected to significantly impact on research, prevention and treatment aspects of obesity in Qatar.

103- TARGETING ENDOThelial NITRIC oxide SYNTHASE FOR THE TREATMENT OF DIABETIC VASCULAR DISEASE

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Endothelial dysfunction is the earliest contributor to the pathogenesis of vascular disease and therefore a target for therapeutic intervention. Endothelial dysfunction is assessed by measuring endothelium-dependent vasodilatation and levels of cell injury markers. eNOS plays a key role in the regulation of vascular function and a reduction in the bioavailability of NO affects not only blood flow, but also multiple other parameters that affect the cardiovascular system. Using a mouse microvesSEL endothelial cell line (MMEC) and simulating diabetes-induced hyperglycaemia to mimic blood glucose levels reported in mice we have determined that exposure to high glucose (HG), 40mM, for 72 h resulted in a significant increase in eNOS protein expression (1.7 fold) P<0.05 versus control, but decreased the dimer monomer protein ratio thus reflecting an “uncoupled” eNOS enzyme. HG significantly elevated oxidative stress, the NADPH oxidase subunit, p22phox, and COX-2 protein expression, but decreased SOD1 and SOD3 and the generation of NO. These changes were reversed by prior treatment with sepiapterin - a precursor of the eNOS co-factor tetrahydrobiopterin, which we have previously reported prevented endothelial dysfunction without reducing glucose levels in diabetic mice. Collectively these data indicate that an early change in hyperglycaemia-induced endothelial dysfunction in the microvasculature is an uncoupling of eNOS and that this is associated with a number of changes in pro- and anti-oxidant enzymes. Thus, an assay technique based on MMECs provides an appropriate screening tool to assess the efficacy of potential new drugs as endothelial protective agents.

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104- COMPARISON OF THE EFFECTS OF LOW-CARBOHYDRATE HIGH-FAT & HIGH-CARBOHYDRATE LOW-FAT WEIGHT-REDUCTION DIETS ON LIPOPROTEIN SUBFRACTIONS IN OVERWEIGHT & OBESE SUBJECTS

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Background Low-carbohydrate/high-fat diets have become increasingly popular for weight loss but their effect on cardiovascular risk requires further investigation. To date, the effect of low-carbohydrate, high-fat (LC/HF) vs. high-carbohydrate, low-fat (HC/LF) weight-reduction diets on the composition and susceptibility to oxidation of lipoprotein subfractions has not been studied.

Objective To compare the effect of LC/HF vs. HC/LF weight-reduction diets on the composition and oxidative modification of VLDL, LDL and HDL subfractions in overweight/obese non-diabetic subjects.

Methods Subjects were randomised in a parallel-group randomised controlled trial of LC/HF (n=24) vs. HC/LF diet (n=24). Subjects were isolated by rapid ultracentrifugation from stored samples from a parallel-group randomised controlled trial of LC/HF vs. HC/LF diet (n=24).

The oxidation of lipoprotein subfractions was assessed for appropriate parameters; the susceptibility of each subfraction to oxidation was also examined.

Results Compared to a HC/LF diet, a LC/HF diet produced an increase in the size of the lipoprotein particles, which was particularly evident in the apoB containing subfractions (LC/HF vs. HC/LF; VLDLₜ, 14.7±2.1 vs. -28.2±1.76%, VLDL₧, 54.7±3.69 vs. 5.67±1.96%, LDLₜ, 101.9±3.08 vs. -4.7±2.34%, LDL₧, 76.0±4.5 vs. -11.3±1.4, LDL₧, 10.46±1.82 vs. -20.8±2.34; p<0.05 for all results shown).

Furthermore, this increase in lipoprotein size augmented the lipid product available for oxidation, as shown by increased conjugated diene formation.

Conclusions Under conditions of matched weight loss, a LC/HF diet was associated with deleterious effects on lipoprotein composition and susceptibility to oxidation compared to a HC/LF diet. These changes were apparent despite levels of total lipid not being significantly different between the two diets. Such changes may have detrimental effects on vascular risk.

105- CELL THERAPY FOR THE FUTURE TREATMENT OF DIABETES

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Introduction In countries with a high diabetes incidence, such as those in the Middle East, as many as one in four deaths in adults aged between 35 and 64 years is due to the disease. Recently, transplantation of isolated islets of Langerhans from a renewable source of cells derived from stem cells which are defined as clonogenic cells capable of both self-renewal and multilineage differentiation. Umbilical cord blood stem transplantation has become a safe and accepted mode of transplantation for recipients due to the low incidence of severe of graft–versus–host–disease, also it has many practical & ethical advantages. Mesenchymal stem cells derived from human umbilical cord blood as new and potential stem cells have good research and application potential in the treatment of diabetes without ethical problems.

Objective To differentiate human umbilical cord blood stem cells into insulin producing cells in the laboratory in vitro & vivo.

Methodology (1) Mononuclear cells separation. (2) Mesenchymal stem cells separation. (3) Differentiation into insulin producing cells. (4) Verification of insulin production by : (i) Morphology. (ii) PCR.

- Administering the stem cells to a mouse.

Results If we can reliably direct the differentiation of human umbilical cord blood stem cells into insulin producing cells, we may be able to use the resulting differentiated cells to treat diabetes in the future.

Conclusion (1) It may become possible to generate insulin producing cells in the laboratory & then transplant them in diabetic patients. (2) Stem cells offer exciting promise for future therapies.
1. Microvesicles harbouring glycosylphosphatidylinositol-anchored proteins and RNA control lipid synthesis between large and small adipocytes

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Microvesicles have been amply documented to transfer proteins and nucleic acids from a variety of donor to acceptor cells with corresponding physiological and pathological consequences. Recently, the transfer of glycosylphosphatidylinositol-anchored proteins (GPI-proteins) from microvesicles released from large rodent adipocytes to intracellular lipid droplets of small adipocytes has been shown to be stimulated by certain physiological (palmitate, H2O2) and pharmacological stimuli (anti-diabetic sulfonylureas drug glimepiride) and to induce the stimulation of esterification into and inhibition of the release of fatty acids from triacylglycerol. Here, the analysis of microvesicles derived from rat adipocytes or plasma revealed that those harbouring the GPI-proteins, Goe1 and CD73, contain RNA species which are transferred into acceptor adipocytes and trigger upregulation of fatty acid esterification (e.g. glycerol-3-phosphate acyltransferase) and lipid droplet biogenesis (perilipin-A, cavedin-1). The transfer is more efficient for small rather than large adipocytes and is significantly upregulated by palmitate, glimepiride and H2O2. These data suggest, that microvesicles released from large adipocytes stimulate triacylglycerol storage in small adipocytes by mediating the transfer of the required information encoded by relevant RNA and GPI-protein species. Paracrine and endocrine regulation of triacylglycerol storage and in parallel cell size between large and small adipocytes by RNA- and GPI-protein-harbouring microvesicles may represent a novel target for interference with obesity.

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1. Remnant-TG as a therapeutic target for lowering plasma triglycerides

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Introduction: Serum concentration of remnant-like lipoprotein particles (RLP) have been measured by cholesterol as RLP-C for CHD risk assessment. Moreover, serum TG levels in disease cases was investigated by TG in RLP (RLP-TG), especially in cases with TG levels less than 150 mg/dL.

Method: Serum RLP-TG levels in health-check populations, cardiovascular disease, diabetes and oral fat load cases were determined. Serum TC, TG, HDL-C, LDL-C and RLP-C concentrations were also determined in the same cases.

Results: Cut-off value (75 percentile) of RLP-TG determined in the fasting control Japanese population was 13.1 mg/dL in men and 9.9 mg/dL in women. In patients with diabetes, metabolic syndrome, cardiovascular disease, RLP-TG levels were significantly higher than those in normal control subjects. RLP-TG levels increased significantly after an oral fat load and the ratio of RLP-TG/total TG increased more than 3 folds compared to the ratio in the fasting state. When serum fasting TG levels were less than 150 mg/dL, the frequency of the cases in normal control group above cut-off value (95% tile; RLP-TG=20 mg/dL) was 4.6 % and the frequency in disease cases were over 20%.

Conclusion: RLP-TG levels were shown to be significantly higher in cases with diabetes, metabolic syndrome, cardiovascular disease. Moreover, the frequency of higher RLP-TG levels above cut off value when TG=150 mg/dL in the fasting state was significantly higher in disease cases than in normal controls. These results revealed that TG therapy should be targeted to reduce less than 150 mg/dL of TG using RLP-TG as a parameter.

1. Psycho-social aspects of neuroendocrine disturbances & metabolic syndrome: stress related problems in university students, and the use of conventional and alternative medical treatments

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It is known that stress can cause several Endocrinological changes in the body. In this study the neuro-endocrine disorders was discussed as a result of different stress factors for university students & their use of conventional and Alternative treatments. A quantitative randomized method in form of surveys was distributed to 105 university students. Depending on the answers, the difference of the stress related disorders and the treatment methods used was studied. A simple mean Z-testing method was used. There was a significant correlation between students according to the different collages they belong to, the stress levels they had, with the significant correlation on having different neuroendocrine disturbances. It showed that the use of conventional and alternative Medical treatments was almost on the same level with only 5% difference. Moreover, the female students use both kind of treatment methods while males preferred the conventional medicine.

The types of these disorders varies clearly within different collages depending on stress frequency & the kind of stress they were suffering from; whether academic stress, social stress or other miscellaneous stresses. It was concluded that the neuroendocrine disturbance is stress-related problem in University students that varies with the collage they belong to & the stress level they undergo.
110- EVALUATION OF SERUM TOTAL CHOLESTEROL AND TRIGLYCERIDE LEVELS IN RURAL AND URBAN DWELLERS
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Cholesterol is essential for the formation of sex hormones, vitamin metabolism, and maintenance of cell membrane integrity, while triglycerides is vital in gluconeogenesis. In this study, the serum level of the two lipids was compared in rural and urban dwellers in Ebonyi State. 123 subjects comprising of 65 rural dwellers (age=26.4±7.1 years), and 58 urban dwellers (age=27.7±4.9 years) participated in this study aimed at evaluating the serum total cholesterol and triglyceride concentration (estimated by routine spectrophotometric technique) in the aforementioned groups. The result showed that there was a significantly higher (P<0.05) total cholesterol concentration in rural (4.93±0.97 mmol/l, n=65) than in urban (4.07±1.1 mmol/l, n=58) dwellers. Between the rural and urban dwellers, however, there was no significant change in the level of triglyceride (1.33±0.54 mmol/l and 1.26±0.6 mmol/l respectively). The finding of high cholesterol in rural dwellers suggests increased intake of diets rich in lipids, and apparently a higher risk of vascular disease. Efforts should thus be made by health professionals through relevant government agencies, to enlighten the rural settlers on the inherent risks of consuming lipid-rich foodstuffs.

111- INFERTILITY: A NIGERIAN PERSPECTIVE
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For virtually every couple, infertility brings a sense of loss, failure, and exclusion. Defined as inability to conceive for a period of 12 months of contraceptive-free regular intercourse, or failure to carry pregnancy to term, the chances of being infertile increases with age especially in women. In Nigeria, the prevalence of infertility has been put between 20%, to 30%, and according to World Health Organization’s guidelines, above 50%, making it not only a public health concern, but also a major threat to marriages. Infertility, which might be primary, secondary, or combined, has arrays of pathogenesis that are anatomical, congenital, hormonal, immunological, microbiotic, or iatrogenic in origin. The diagnostic clues are usually a function of the etiology – gonadal steroids estimation, semenalysis, ultrasonography, and ovarian reserve assessment among others, being the hallmark of proper diagnosis. Management of infertility is a critical step to ameliorate its accompanying psychological stress, itself a cause. Assisted reproductive techniques especially in vitro fertilization has rekindled the hope of very many infertile people mostly in the developed nations but has not gained prominence in this part of the world, hence, the need for a more concerted effort to be made in combating the scourge. While counseling should be advocated to enlighten the couples on the preventable causes of infertility, sponsorship for remedial approaches to the problem should also be stepped-up to assist couples to whom infertility is seemingly inevitable. By these efforts, the alarming burden of infertility in Nigeria will surely be reduced drastically.

112- DIET-INDUCED OBESITY CAUSES HEPATIC OXIDATIVE STRESS: MECHANISMS AND INTERVENTION
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Oxidative stress due to imbalanced free radical generation and metabolism is associated with obesity. Although oxidative stress has been observed in several tissues, its occurrence in the liver during diet induced obesity (DIO) remains controversial. The objective of this study was to investigate the effect of DIO on hepatic oxidative stress and to identify natural compounds capable of protecting against hepatic oxidative injury. Mice were fed either a control (10% kcals fat) or DIO (60% kcals fat) diet for 12 weeks. Compared with control mice, the body weight of DIO mice was significantly increased after the 12 week feeding period. In association with weight gain, DIO mice showed a significant increase in serum malondialdehyde (MDA), a biomarker of lipid peroxidation, as well as a significant reduction in total serum antioxidants. Serum levels of alanine aminotransferase and aspartate aminotransferase, indices of liver injury, were markedly higher in DIO mice. Hepatic MDA levels were also significantly higher in these mice, indicating a disruption in redox balance in the liver. On the other hand, hepatic NAPDH oxidase-mediated superoxide anion production was strikingly increased in DIO mice while the activities of antioxidant enzymes such as superoxide dismutase were impaired. Our results have also indicated that certain natural compounds are hepatoprotective in DIO which may be mediated by their antioxidant effects in the liver.

113- PHOSPHORUS PRELOAD SUPPRESSES SUBSEQUENT ENERGY INTAKE THROUGH SATIATION BUT NOT SATIETY
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Objective: The effect of phosphorus (P) manipulation of a high fructose solution on average appetite (AA) and subsequent energy intake (EI) was investigated.
Method: Four preloads were offered in a blind randomized order to 20 overweight subjects (10 males and 10 females). The preloads were composed of fructose (40g) plus glucose (10g) (200 kcal/250ml) with no added P (HF-DP), 50mg (HF-50P), 250mg (HF-250P) or 500mg (HF-500P) of added P. Subjective AA was measured at 15 min intervals from baseline till 75 min and at 80 min an ad libitum lunch (pizza) plus water were offered.
Results: No difference area under the curve (AUC) of AA following the different preloads. The similarity in subsequent water intake indicates a comparable caloric value. Subsequent EI (expressed in kcal) decreased with increased P content of the preload.
Conclusion: Increasing P content of the preload was associated with a reduction in EI at a subsequent meal. The similarity in AA between different preloads indicates that reduced energy intake was mainly attributed to satiety rather than satiety.

114- ARTERIAL RIGIDITY ESTIMATED BY 24-HOURS MONITORING OF THE BLOOD PRESSURE AND ECG IN ELDERLY
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Aims: to evaluate the effect of treatment in metabolic syndrome with arterial hypertension 1-2 degrees. Methods: Overall, 25 consecutive patients with metabolic syndrome: 15 men (60%) and 11 women (40%) aged 52.8 years on average, were studied. The office blood pressure (BP) levels were: systolic BP-153.2±11.2mm Hg, diastolic BP+6.3±3.9mm Hg, body mass index-33,9±5.2kg/m2, waist circumference - 108,9±9,1cm, cholesterol HDL-4,37±0,8mmol/l, cholesterol LDL-2,1±1,3mmol/l. The biochemical parameters were measured on OLYMPUS AU400 device (Japan). Patients were
administered caravudol at a daily dose of 12.5-37.5 mg. In insufficient effect of monotherapy the nifedipine retard in dose of 20-40 mg per day was added. In all cases metformin in dose of 850 mg and simvastatin in dose of 10-20 mg per day were assigned. Arterial stiffness was assessed using volume sphygmography device VS-1000 ("Fukuda Denshi", Japan) on the following parameters: pulse wave velocity (PWV) in elastic arteries on the right and left side (R-PWV, L-PWV), muscular arteries (B-PWV), aortic PWV (PWV), and carotid-ankle vascular index (CAVI).

**Results:** After 16 weeks of treatment the reliable decrease of office DBP up to 126.7±4.5 and DBP up to 82.0±3.2 mmHg has been noted (p<0.05). The increase of arterial compliance has been observed: PWV decreased from 8.4±1.8 ms/m till 7.8±2.6 mmHg (p<0.05); R-PWV - from 14.4±1.1 ms/m till 13.1±1.3 ms/m (p<0.05); B-PWV - from 14.4±1.7 ms/m till 13±1.2 ms/m (p<0.05); CAVI from 8.7±1.4 till 8.1±0.9 (p<0.05).

**Conclusion:** Combined treatment, including antihypertensive, lipid-lowering therapy, and metformin in patients with metabolic syndrome and hypertension allows decreasing effectively the office BP and also reducing arterial stiffness.

**Background:** The efficacy and safety of single pill amlodipine/atorvastatin for reducing blood pressure (BP), low density lipoprotein cholesterol (LDL-C) and predicted 10-year cardiovascular (CV) risk have been demonstrated in low CV risk countries. The STRONG DUET study evaluated its clinical utility in Slovakia, one of the highest CV risk regions in Europe.

**Design:** Two-phase study involving 100 outpatient cardiologist and internist departments in Slovakia. Phase 1 assessed BP control and CV risk profiles in adults with treated hypertension; Phase 2 was an open-label, multi-center, observational study.

**Phase 2 methods:** Patients with treated but uncontrolled hypertension and ≥3 coronary heart disease risk factors received single-pill amlodipine/atorvastatin (5/10-10/10 mg) for 12 weeks. Major outcomes were the percentage of patients achieving target BP (<140/90 mmHg) and/or LDL-C ≤3.3 mmol/l and reductions in predicted 10-year CV risk.

**Results:** Of the 4,672 Phase 1 patients, 80.8% had uncontrolled hypertension and 61.4% had dyslipidaemia. Of the 1,406 Phase 2 patients, 90.3% of patients achieved target BP at Week 12, 66.3% achieved target LDL-C and 60.7% achieved both. Mean 10-year CV risk was reduced by 49% (p<0.0001); treatment was well-tolerated and safe.

**Conclusions:** Single-pill amlodipine/atorvastatin was associated with significant improvements in BP, LDL-C target attainment and 10-year CV risk in patients with uncontrolled hypertension in Slovakia. Treatment was well-tolerated and safe. Use of single-pill amlodipine/atorvastatin in high CV-risk countries could lead to significant improvements in CV risk management.
FACTORS IN OMANI MALES LEVELS ARE STRONGLY PREDICTED BY WAIST/HIP RATIO AND CORRELATE WITH Atherosgenic RISK FACTORS IN OMANI MALES

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Background: Obesity increased in Oman in the last decade, particularly in males. Abdominal obesity is associated with metabolic consequences that increase the risk of atherosclerosis. Acylation stimulating protein (ASP) is an adipokine that stimulates fat storage in adipocytes and enhances triglyceride clearance from plasma. Impaired ASP function may contribute to dyslipidemia associated with abdominal obesity.

Aim: To examine the association of fasting ASP levels with 1) obesity indices (BMI and waist/hip ratio) and 2) atherosgenic biomarkers, particularly LDL size in Omani males.

Methods: 83 Omani males (53 normolipidemic and 30 moderate-hyperlipidemic, age: 24-67 yrs) were included in this study. Fasting ASP plasma levels were measured by ELISA. Lipid parameters were measured by automated chemistry analyzers. LDL size was measured by non-denaturing gel electrophoresis.

Results: Multiple regression analysis showed the waist/hip ratio as the highest predictor of plasma ASP levels (r = 0.522, p < 0.0001). A positive correlation of ASP was shown with BMI (r = 0.331, p = 0.002), TG/HDL (r = 0.29, p = 0.01) and VLDL-C levels (r = 0.23, p = 0.03). A negative correlation was seen with LDL size (r = 0.25, p = 0.025). No correlation was found with LDL-C or apoB levels.

Conclusion: Increased waist/hip ratio may be associated with ASP resistance which could contribute to delayed TG clearance. Circulating TG (VLDL) may enhance the formation of small dense LDL by action of cholesterol-ester-transfer protein. This may not necessarily associate with increased production of apoB containing lipoproteins from the liver.

Funding: Sultan Qaboos University

121- CHOLESTEROL LOWERING EFFECT OF SAR236553/REGN727 IN HAMSTER AFTER SINGLE S.C. INJECTION

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Introduction: The hepatic LDL receptor (LDLR) is a key component for cholesterol homeostasis. The transcription of both the LDLR and PCSK9 is up-regulated by statins through SREBP-2. Therefore, increased expression of PCSK9 decreases LDLR numbers via enhanced degradation, which limits the extent that statins can lower LDL-cholesterol (LDL-C) in humans. This effect is exacerbated in hamster and other rodents where statins are not effective in reducing LDL-C.

SAR236553/REGN727 is a full human therapeutic antibody generated against PCSK9. In a phase I study LDL-C reduction exceeded 60% and lasted for 30 days following a single i.v. administration.

Objective: The aim of the study was to investigate the effect of SAR236553/REGN727 alone and in combination with statins on SREBP2 pathway and resulting effects on LDL-C.

Results: A single s.c. injection of SAR236553/REGN727 (1/3/10 mg/kg) resulted in a dose-dependent decrease in LDL-C lasting more than 2 weeks. The maximal effect on LDL-C (~17/-27/-40%) was seen within 7 days, before rising back to baseline levels. Atorvastatin treatment up to the maximal tolerated dose increased LDLR and PCSK9 transcription, but did not decrease LDL-C in hamsters. SAR236553/REGN727 (10 mg/kg) administered with atorvastatin was more effective than SAR236553/REGN727 alone, suggesting that the combination treatment could overcome the statin resistance seen in hamster.

Conclusion: PCSK9 inhibition resulted in dose-related LDL-C-lowering in hamsters. SAR236553/REGN727 on top of statin treatment could overcome the statin-resistance of hamster. Based upon these findings in hamsters, we expect additive effects on LDL-C lowering with SAR236553/REGN727 when combined with a statin in humans.

Funding: I am an employee of Sanofi-Aventis

122- DEVELOPMENT AND IMPLEMENTATION OF A EUROPEAN PRACTICE GUIDELINE AND TRAINING STANDARDS FOR DIABETES PREVENTION - THE IMAGE PROJECT – IMPLICATION FOR THE GULF STATES

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Background: Prevention programs can significantly reduce the risk of developing diabetes. In the view of still lacking national strategies the IMAGE Project will contribute to the need of presenting evidence and practice information in diabetes prevention as well as developing quality standards in diabetes care and its prevention. With over 40 partner organizations from 16 EU- and 6 non-EU member states it is one of the largest projects in the public health sector.

Objectives: European practice-oriented guidelines for the primary prevention of type 2 diabetes A European curriculum for the training of prevention managers European standards for quality control A European e-health training portal for prevention managers

Results: The project was finished in May 2010. The IMAGE deliverables addressing the objectives are freely available in the Virtual Prevention Center (http://www.virtualpreventioncenter.com). The IMAGE evidence has inspired stakeholders all over the world to start programmes and activities to prevent type 2 diabetes. This evidence can directly applied and modified also in the Gulf states

Perspectives: What is needed now is political support to develop national action plans for diabetes prevention. The prerequisites for successful prevention activities include involvement of a number of stakeholders on governmental and nongovernmental level as well as on different levels of health care. Furthermore, structures to identify high-risk individuals and manage intervention, follow-up, and evaluation have to be established. The implementation of IMAGE results will provide unique guidance as a draft into the development of an national strategy for the prevention of diabetes mellitus.

Funding: European commission; Grant Agreement between the Public Health Executive Agency (PHEA; now European Agency for Health and Consumers,EAHC) and the IMAGE Group No. 20063309

123- HEALTHY-LIFESTYLE APPROACH TO WEIGHT MANAGEMENT

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Incidence of obesity has reached epidemic proportions globally, with more than 1 billion adults overweight or obese and a major contributor to the global burden of chronic disease and disability. The fundamental causes of the obesity epidemic are sedentary lifestyles, high-fat energy-dense diets and lack of physical activity. Today, people eat more for entertainment and recreation than for health and nutrition.

Healthy-lifestyle approach to weight management is a realistic approach that reverses this trend so that people again relate to food in a positive and healthy way. Thus, it is absolutely essential for all health care professionals to obtain comprehensive training on this healthy lifestyle approach for their own well-being and ultimately for those under their care.

The purpose of this scientifically approved interactive workshop is to provide self-management skills necessary to adopt a healthy lifestyle. Unlike diets that are based on deprivation, this approach, a person can eat a lot of nutritional food while losing weight.

Upon completion of training, participants will be able to:
• assess their present overweight/obesity status know their BMR
• estimate the calories needed for desirable body weight and develop an action plan to lose one pound a week
• choose an eating plan and physical activities to prevent weight gain
• guide others to make sustainable adjustments to their lifestyle in small, focused changes that lead to successful weight management

This successful and informative approach to teaching healthy habits has created enormous change for hundreds of individuals where ever it has been presented.
125- A NATURALISTIC ASSESSMENT OF THE CHANGE IN LIPID FRACTIONS BETWEEN PATIENTS CONTINUING MODERATE DOSE STATIN MONOTHERAPY OR AUGMENTING WITH NACIN EXTENDED-RELEASE

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Objective: To compare the change in lipid fractions between patients continuing simvastatin 40 mg/day or equivalent statin monotherapy (S40M) and patients augmenting S40M with niacin extended-release (NER).

Methods: Patients age ≥21 years continuing S40M or newly augmenting S40M with NER (500-2000 mg/day) between 1/1/2005-1/31/2010 (index date) with ≥1 full lipid panel six months prior to index date and during post-index follow-up were included. S40M and NER patients were matched 3:1 based on prior exposure to S40M and baseline LDL-C, HDL-C, triglyceride (TG), and total cholesterol values. The primary outcome was change in LDL-C, HDL-C, TG and non-HDL-C from baseline to follow-up.

Multivariate generalized linear models (normal distribution and identity link function) were utilized to compare the change in lipid levels between cohorts and controlled for age, gender, and comorbidities.

Results: A total of 1,449 patients were identified; 1,063 S40M patients were matched to 386 NER patients. The mean change was no difference in baseline LDL-C (P=0.09), TG (P=0.44), non-HDL-C (P=0.95), and Deyo-Charlson co-morbidity Index (P=0.97) between cohorts. Baseline HDL-C was marginally higher (P=0.05) and the prevalence of prior ischemic heart conditions (myocardial infarction and angina pectoris) was higher (P<0.0001) among NER patients. Multivariate analyses demonstrated significant improvements to all lipid sub-fractions from baseline to follow-up among NER patients: -5.1 mg/dL (P<0.0001), -3.4 mg/dL (P<0.0001), -15.6 mg/dL (P=0.0003), and -8.1 mg/dL (P=0.0001) for LDL-C, HDL-C, TG, and non-HDL-C respectively.

Conclusions: The results indicate an opportunity to further improve the entire lipid profile by augmenting equivalent simvastatin 40 mg/day monotherapy with niacin extended-release.

Funding: This study was funded by Abbott Laboratories, Abbott Park, IL.

126- CHANGE IN LIPID FRACTIONS AND GOAL ATTAINMENT FOLLOWING THE INITIATION MODERATE DOSE STATIN MONOTHERAPY AND SUBSEQUENT AUGMENTATION WITH NACIN EXTENDED-RELEASE

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Objective: To assess change in lipid fractions and goal attainment among patients initiating simvastatin 40 mg/day or statin monotherapy (S40M) pre- and post-niacin extended-release (NER) augmentation.

Methods: Patients age ≥21 years initiating S40M and NER augmentation were evaluated over three time intervals: pre-S40M, post-S40M and pre-NER and post-NER augmentation. Patients with ≥1 full lipid panel in each interval were identified using the HealthCore Integrated Research Database (HIRD)® from which administrative claims submitted 1/1/2004 through 1/31/2010 were analyzed. Primary outcome was change in lipid fractions and goal attainment. Outcome comparison among intervals utilized paired t-test (α=0.0125) and McNemar’s test (α=0.0125). Multivariate generalized linear models (normal distribution and identity link function) controlled for age and co-morbidities.

Results: 184 patients (18.5% female) were identified. Prevalence of hypertension (P<0.0001), ischemic heart diseases (P=0.0167) and peripheral vascular disease (P=0.0082) increased over time. Both LDL-C and non-HDL-C values dropped post-S40M initiation (-4.5±3.7; P=0.0001 and -5.4±1.7; P=0.0001 respectively) and maintained constant levels post-NER augmentation (2.2±2.8; P=0.2881 and -2.7±3.6; P=0.2963). HDL-C levels decreased post-S40M initiation (-2.0±0.7; P=0.0001) and improved post-NER augmentation (4.5±1.5; P=0.001). TG continually improved from each preceding treatment interval. Achievement of lipid targets over time was consistent with observed mean changes with combined goal attainment increasing from 0% pre-S40M to 12% post-NER augmentation, increasing nearly four-fold pre-S40M to NER augmentation (3.3% to 12%; P=0.0006).

Conclusions: Initiation of S40M significantly improved LDL-C, TG, and non-HDL-C levels, and augmentation with NER significantly increased HDL-C and continued TG reduction while maintaining LDL-C values. Funding: This study was funded by Abbott Laboratories, Abbott Park, IL.

127- DIABETOGENIC EFFECT OF VARIOUS LIPID ABNORMALITIES IN ASIAN INDIAN POPULATION: THE CHENNAI URBAN RURAL EPIDEMIOLOGY STUDY

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Objective: The Aim Of The Study Was To Look Into The Diabetogenic Effect Of Various Lipid Subfractions In Asian Indians

Methods: The study subjects (n=2350) were recruited from the Phase 3 of Chennai Urban Rural Epidemiology Study (CURES), a population based study on a representative population of Chennai. Fasting plasma glucose, glycosylated haemoglobin (HbA1c) , serum cholesterol, serum triglycerides and HDL cholesterol were measured using commercial kits, while LDL and Non HDL cholesterol was calculated . Glucose intolerance group was comprised of subjects with impaired glucose tolerance , newly detected diabetic subjects ( as per ADA guideline ) and known diabetic subjects.

Results: Most common lipid abnormality in our population was high non HDL cholesterol (54.6 %) . Prevalence of glucose intolerance was significantly higher among the subjects with increasing values of Cholesterol, Triglyceride, LDL cholesterol and Non-HDL cholesterol ( all P values < 0.0001). Groups having hypertriglyceridaemia and high non-HDL cholesterol had an odds ratio of 3.285 [ 95% confidence interval ( 2.689 – 4.013 )] and 3.194 ( 95% confidence interval (2.605 – 3.917 )] respectively for developing glucose intolerance with a significant P value < 0.0001

Conclusion: Higher non-HDL cholesterol levels increases the glucose intolerance risk in Asian Indians.
128- PROJECT OF HEALTH SUPPORT FOR OBESE PATIENTS WITH DM II TYPE - CHANGES OF SERUM LIPIDS LEVEL

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Introduction: The most popular topic in this time is food’s role in the obese person’s lifestyle. Lack of vegetables and fruit has not been an issue in the past 10 years. It is more an issue of traditional Czech cuisine prefers more fatty meat and dumplings. This is changing; the younger generation tends to westernize its food intake. But this does not mean improvement.

Methods: A selected group of 100 people was measured biochemical and anthropometrical parameters at the beginning of study and after half year. It is emphasized that total fat may range from 25 to 35%. This is not a recommendation to increase total fat intake. Indeed, the emphasis is on reducing sources of saturated fats (animal, dairy fats, coconut…) in the diet. In those with metabolic syndrome who have abdominal obesity, high triglycerides, low HDL-C, glucose intolerance, and/or elevations of blood pressure, it may be useful to increase the amount of unsaturated oil as either monounsaturated or polyunsaturated fatty acids (for example, canola oil) to allow less carbohydrate and hence better glucose control. A more analysis showed that in diabetes type 2, a high–monounsaturated fat diet could improve lipoprotein profiles as well as glycemic control.

Conclusions: Our objective was possibility of change of selected biochemical parameters, especially those, which are generally used as risk indices for the origin and development of cardiovascular diseases only using arrangement diet customs.

Funding: PPZ No 9156/2004, Ministry of Health, The Czech Republic

129- PROJECT OF HEALTH SUPPORT FOR OBESE PATIENTS UNDERGOING BARIATRIC SURGERY

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Summary: More and more school-age children are becoming overweight or obese. Obesity is consequence of an energy imbalance. Many of children are not meeting dietary recommendations. Food habits are characterized by an irregular meal pattern, skip breakfast, also school lunch, increases in soft-drink consumption, and are not eating fruits and vegetables…, simultaneously become less active and watch tv or computer each day.

Methods: The target population was elementary school children in 2nd, 4th, 6th and 8th grade. In order to generally evaluate up-to-date health condition of examined children and to record their eating habits all the study participants received simple food frequency questionnaire, which were focused on the consumption of meat, fish, milk, eggs, vegetables, fruit, type of beverage and sweets. Children completed 24-hour recall too. Dietary intakes were analyzed using nutrient analysis software NUTRIDAN.

Results and Conclusion: The majority of children are not meeting recommendations for energy intake. Much of this deficit is attributed to changing beverage consumption patterns, characterized by declining milk intakes and substantial increases in soft-drink consumption. On average children are not eating the recommended amount of fruits and vegetables. Overall, children consumed larger part of their total daily energy from fat. Boys consumed higher portion of energy derived from fat and girls consumed more energy from carbohydrates. The daily fiber intake was similar in both gender and lower then recommendations.


130- INVESTIGATING THE GENETICS OF CORONARY ARTERY CALCIFICATION IN PROFESSIONAL FIREFIGHTERS

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Introduction: Firefighters have a 2-3 fold increased coronary heart disease (CHD) event risk. The metabolic syndrome (MetaSyn) is linked to increased CHD risk and is defined by elevated blood pressure, excess body fat, thrombogenic potential, insulin resistance, and dyslipidemia.

Methods: 287 asymptomatic firefighters (age 47±5 yrs) underwent risk factor screening and quantitative measurement of carotid intimal thickening (CIMT) and had their coronary artery calcium (CAC) score determined on a 64-slice computed tomography system. Subjects were characterized as having no CAC (<CAC) or with CAC (>CAC), and as having thickened CIMT (> 800 microns, +TIM) or CIMT ≤ 800 microns (-TIM).

Results: 43.2% of asymptomatic professional firefighters had evidence of either +CAC or thickened CIMT. Standard lipid protein measurements and measures of body fat were not associated with CAC or CIMT. Blood pressure, impaired glucose tolerance, and prothrombogenic characteristics were associated with subclinical atherosclerosis defined by +CAC or +CIMT.

Conclusion: In a physically active group of firefighters, reliance on measures of body fat and standard lipids may not identify those with subclinical atherosclerosis.

Funding: Federal Emergency Management Association (FEMA) grant # EMW-2006-FP-01744

131- THE METABOLIC SYNDROME PREDICTS Atherosclerosis IN PROFESSIONAL FIREFIGHTERS WHILE STANDARD LIPIDS AND BMI DO NOT

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Introduction: Over 5.5 million adults are obese in Canada and obese patients in particular are at increased risk for cardiovascular events. Bariatric surgery has been shown to decrease mortality and reverse obesity related co-morbidities; however no consensus has been reached on the optimum cardiovascular screening technique in this population. The present study was conducted to describe the feasibility and validity of Exercise Stress Echocardiography (ESE) in assessing pre-operative cardiac risk in obese patients undergoing bariatric surgery.

Methods: Obese subjects were referred to Windsor Cardiac Centre and underwent ESE as pre-operative risk assessment prior to Bariatric surgery. A positive ESE test was defined as a new wall motion abnormality suggesting stress induced...
ischemia. Patient data collected included cardiac risk factors before and after surgery, cardiovascular outcomes and weight loss.

**Results:** Ten patients (9 female, mean age, 48.2 ± 15.1 years, mean BMI, 48.7 ± 11.0 kg/m²) served as the study population. All 10 patients (100%) had a diagnostically negative ESE (average maximum predicted heart rate 88%, average metabolic equivalent 4.4) and were free of cardiovascular events after death postoperative. Four Diabetic patients (100%), 3 patients (75%) with hypertension, and 3 patients (45%) with asthma had their diseases controlled off medications postoperatively. The postoperative weight loss was 99.2 ± 32.7 pounds resulting in a mean BMI of 34.3 ± 9.9 kg/m².

**Conclusions:** Obese patients, ESE proved to be an accurate tool for pre-operative cardiac risk assessment. Bariatric surgery reduced obesity related co-morbidities and resulted in significant weight loss.

### 133- WOMEN WITH PCOS HAVE SIGNIFICANTLY LOWER LEVEL OF CIRCULATING APELIN: A NOVEL CLINICAL EVIDENCE FOR INVOLVEMENT IN THE REGULATION OF INSULIN SENSITIVITY

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**Taslim Ertem**

**Ceylan Geyhan**

**Serkan Tapan**

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**Gokhan Ozgur**

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Polycystic ovary syndrome (PCOS) is a frequent condition characterized by unovulation, hyperandrogenism and insulin resistance. Hyperinsulinemia seems to have a central role in both the mechanism of the disease itself and accompanying metabolic consequences. Apelin is an adipokine that was initially thought to participate only in the regulation of cardiac contractility and fluid homeostasis; however, it was recently demonstrated to be a major peptide required in the maintenance of insulin sensitivity. In the present study, we investigated whether the level of blood apelin is altered in overweight women with PCOS in comparison with age and body mass index (BMI) matched healthy controls. A total of 36 otherwise healthy women with PCOS diagnosed during infertility management were included in the study. Age and BMI matched 30 women were enrolled as controls. Blood apelin and hsCRP measurement as well as determination of insulin sensitivity with the HOMA formula were performed for all participants. Women with PCOS had statistically significant lower blood apelin level as compared with the healthy controls. hsCRP and HOMA measurements were higher in patients with PCOS. Blood apelin level displayed a negative correlation with HOMA in women with PCOS. Logistic regression analysis revealed that waist-to-hip circumference ratio, hip circumference and FSH level were the predictors of circulating apelin level.

In conclusion, significantly reduced level of blood apelin in women with insulin resistant PCOS suggest that dysregulated synthesis and secretion of this peptide may be involved in the mechanism of the disease.

### 134- INSULIN RESISTANCE VALUES IN NORMAL WEIGHT VEGETARIANS AND NON-VEGETARIANS

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** Aim of the study.** Insulin resistance values were assessed in relation to different nutrition. Metabolic abnormality is a predictor of age-related diseases and can be more pronounced in obese subjects. Insulin resistance values in normal weight subjects of two different nutritional habits were correlated to age.

** Methods.** Fastings concentrations of glucose and insulin as well as calculated values of insulin resistance IR (HOMA) were assessed in two nutritional groups of apparently healthy adult subjects aged 20-50 years with normal weight (BMI 18.5-22.9 kg/m²); a vegetarian group (95 long-term lacto-ovo-vegetarians) and a non-vegetarian control group (107 subjects of general population on traditional western diet).

**Results.** Glucose and insulin concentrations and IR (HOMA) values were significantly lower in vegetarians (glucose 4.47±0.05 vs. 4.71±0.07 mmol/l; insulin 4.96±0.23 vs. 7.32±0.41 mU/l; IR(HOMA) 0.99±0.05 vs. 1.59±0.10). IR (HOMA) dependence on age was only significant in subjects on western diet. Low values of insulin resistance in vegetarians are a consequence of a long-term frequent consumption of protective food (significantly higher consumption of whole grain products, pulses, products from oat and barley in comparison to non-vegetarians).

**Conclusion.** The results of age independent and low values of insulin resistance document a beneficial effect of long-term vegetarian nutrition in prevention of metabolic syndrome, diabetes and cardiovascular disease.

**Funding:** This publication was created by realization of research project “Health effects of plant food segments (+141%, p<0.001; +210%, p<0.001).”

**Conclusions:** IED reduces IR, as shown by decreased fasting pAKT/AKT ratio (-80%, p=0.03), and increased percentage undiseased arterial segments (+141%, p<0.001) and increased VAT iron accumulation with IED led to overt diabetes and in HFD fed mice increased by about 100%, associated with insulin resistance (IR) and organ damage. However, whether iron overload has a causal role in the pathophysiology of MetS is not well understood. Aim was to assess the effects of dietary modulation of iron status on IR and to investigate the underlying mechanisms in mouse models.

**Methods:** Wild-type or ob/ob 4-week-old male C57BL/6 mice were fed for 16 weeks a standard iron concentration diet (8mg/kg, n=15) or an iron enriched diet (30mg/kg/IED, n=15), with/without high-fructose diet (HFD).

**Results:** IED was associated with increased serum/ hepatic iron (comparable to that observed in patients with MetS). Despite IED reduced weight gain, due to reduced visceral adipose tissue mass (VAT, perigonadal fat pad-60%, p<0.02), it induced a progressive increase in glucose due to IR, confirmed by i.p. insulin tolerance test. In ob/ob mice IED led to overt diabetes and in HFD fed mice IED increased IR by about 100%, associated with decreased VAT despite no changes in total body mass, thus suggesting VAT-IR. IED increased VAT-IR, as shown by decreased fasting pAKT/AKT ratio (-80%, p<0.03), and VAT iron accumulation with oxidative stress and UPR activation. In addition, IED induced increased VAT resistin mRNA levels (p=0.005), which resulted in hyper-resistinemia (p<0.01) and increased VAT expression of SOCS3 (p<0.05), a resistin target implicated in the pathogenesis of IR.

**Conclusions:** IED reduces IR in C57BL/6 mice and synergizes with obesity in the pathogenesis of metabolic complications.
significantly more potent than simvastatin treatment alone, evidenced by less lesions (-44%, p<0.01) and lesion area (-74%, p<0.001) and more diseased segments (+110%, p<0.01). Results of lesion composition are pending.

Conclusion: Niacin, simvastatin and their combination all improve plasma lipid levels and reduce atherosclerotic lesion area and severity. However, niacin significantly added to the effect of simvastatin alone, with regards to lipid levels and all atherosclerosis parameters.

137- ALSIKIREN INHIBITS ATHEROSCLEROSIS DEVELOPMENT AND IMPROVES PLACQUE STABILITY IN APOE*3LEIDEN.CETP TRANSGENIC MICE WITH OR WITHOUT TREATMENT WITH ATORVASTATIN
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Objectives Aliskiren is the first commercially available, orally active, direct renin inhibitor approved to treat hypertension. The renin angiotensin system has been shown to be a significant contributor to the development of hypercholesterolemia-induced atherosclerosis. The aim of this study was to evaluate the anti-atherosclerotic and plaque stabilization effects of aliskiren alone and in combination with atorvastatin.

Methods APOE3Leiden.CETP mice were fed a western-type diet alone or were treated with either aliskiren alone (100 mg/kg/d), atorvastatin (3.6 mg/kg/d) or a combination of both. Effects on systolic blood pressure (SBP), cholesterol, inflammation markers and atherosclerosis were assessed.

Results Aliskiren reduced SBP (-19%; p<0.001) and atorvastatin reduced cholesterol (-23%; p<0.001). Atherosclerotic lesion area was reduced by aliskiren (-40%, p<0.01), atorvastatin (-61%, p<0.001) and the combination treatment (-69%, p<0.001). Aliskiren alone and in combination with atorvastatin decreased the macrophage content (-33%, p<0.01 and -29%, p<0.05) and neocrotic area (-32%, N.S.; -54%, p<0.05). Atorvastatin alone and together with aliskiren increased smooth muscle cell (SMC) content of the cap (+89%, p<0.01 and +188%, p<0.001) and decreased monocyte adherence (-43%, p<0.05 and -51%, p<0.01) and monocyte chemoattractant protein-1 (both -36%, p<0.01). The combination treatment decreased the number of lesions (-17%; p<0.05) and E-selectin (-17%, p<0.05).

Conclusions: Aliskiren inhibited atherosclerosis development and improved plaque stability. The protective effects of aliskiren were most potent when combined with atorvastatin as evidenced by a reduction in lesion area, macrophage content and necrotic area, as well as by an increase in SMC content of the cap.

138- IN VIVO ANALYSIS OF NON-ALCOHOLIC FATTY LIVER DISEASE IN A TRANSLATIONAL MODEL FOR THE METABOLIC SYNDROME
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The metabolic syndrome is characterized by the co-occurrence of several risk factors, such as obesity, insulin resistance, dyslipidemia, and inflammation which eventually may lead to the development of complications in various organs. Prominent pathology herein is the currently untreatable liver cirrhosis, which is preceded by non-alcoholic fatty liver disease and non-alcoholic steatohepatitis. Ideally, diseased liver status should be detected as early as possible. Since histopathological evaluation of liver biopsies clinically not feasible, MRI invasive Magnetic Resonance Spectroscopy (MRS) is used to assess liver fat content as a surrogate marker for liver pathology.

In pre-clinical drug development, translational disease models mimicking human disease are needed in combination with clinically relevant methods to evaluate disease status. The APOE3Leiden.CETP transgenic mouse develops obesity, insulin resistance and sustained hyperlipidemia on a balanced high fat diet. As such, in the model multiple characteristics of the metabolic syndrome are present. Additionally, this mouse model responds in a human-like manner to hypertriglyceridemia and liver steatosis. Therefore, we investigated the effect of a novel high-affinity LXR activator, AZ876 on plasma lipids, inflammation and atherosclerosis and compared the effects with GW3965.

Methods APOE3Leiden mice were fed an atherogenic diet alone or supplemented with either AZ876 (5 or 20 µmol/kg/d) or GW3965 (17 µmol/kg/d) for 20 weeks. Results Low dose AZ876 had no effect on plasma lipids, whereas high dose AZ876 increased plasma triglycerides (+110%) and reduced cholesterol (-16%) compared with controls. GW3965 increased plasma triglycerides (+70%). Low dose AZ876 reduced lesion area (-47%); and high dose AZ876 strongly decreased lesion area (-91%), lesion number (-59%) and severity. In either dose, AZ876 did not affect lesion composition. GW3965 reduced atherosclerosis and collagen content of lesions (-23%; p<0.01). High dose AZ876 and GW3965, but not low dose AZ876, reduced inflammation as reflected by lower cytokine levels and vessel wall activation.

Conclusions: We identified a novel LXR agonist that when given in a low dose inhibits the progression of atherosclerosis without inducing anti-inflammatory effects, liver steatosis or hypertriglyceridemia.

139- LOW DOSE OF LXR AGONIST A2B76 REDUCES ATHEROSCLEROSIS IN APEO*3LEIDEN MICE WITHOUT AFFECTING LIVER OR PLASMA TRIGLYCERIDE LEVEL
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Objectives Liver X receptor (LXR) agonists are atheroprotective but often induce hypertriglyceridemia and liver steatosis. We investigated the effect of a low dose of an LXR activator, A2B76 on plasma lipids, inflammation and atherosclerosis and compared the effects with GW3965.

Methods APOE3Leiden mice were fed an atherogenic diet alone or supplemented with either A2B76 (5 or 20 µmol/kg/d) or GW3965 (17 µmol/kg/d) for 20 weeks.

Conclusions: In groups of men and women registered increased of leptin/adiponectin ratio(L/A). Metabolic syndrome defined by ATP III criteria(2001).

Results: The lowest leptin levels(15,2±2,55ng/ml) has in the first group of women with normal body weight. The women fifth group of obese III level is already86,7±11,3 ng / ml. The indicator of endocrine activity of adipose tissue was ratio L/A. Growth in this indicator clearly correlated with increasing BMI of women.In the first group of women L/A ratio was 26,59±6,03 and in the fifth group of women with normal body weight, this figure is only12,84±3,37. In the first group of men L/A ratio equal to 8,96 ± 1,24. In the fifth group of indicators BMI 18,5 - 25 level of this index is the lowest - 7,58 ± 2,78

Conclusions: In groups of men and women registered increased of leptin level in plasma according to the growth of body mass index. In our work revealed a strong direct correlation between the increase in L/A ratio and increase in BMI, in men (r = 0.81, p <0.001) and in women (r = 0.76, p <0.001).

141- ENHANCED PLATELET AGGREGATION, HYPERINSULINEMIA AND LOW TESTOSTERONE LEVEL IN MONOSODIUM GLUTAMATE OBESE RATS
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The aim of this study was to assess the effect of obesity induced by high fat diet and monosodium glutamate (MSG) on platelet aggregation, hemolatic parameters, plasma insulin and testosterone in adult male rats. Male rats were...
distributed into 3 groups: Control group, receiving control diet. High fat diet (HFD) - induced obesity group, receiving high fat diet. Monosodium glutamate (MSG) - treated group, receiving control diet and MSG in a dose of 150 mg/Kg b.w. daily by gavage. The HFD and MSG- obese rats showed increased values of final body weight (BW), body mass index (BMI) and Lee index as well as the percentage gain of these parameters compared with their matching controls. ADP-induced platelet aggregation was significantly increased in the MSG-obese rats as compared to either control rats or HFD-obese rats. A significant increase in plasma insulin level in MSG-obese group compared to their control group was observed. In contrast, plasma testosterone level was significantly decreased in MSG-obese rats compared to their matched control and HFD-obese groups. A positive correlation was observed between plasma insulin level and ADP-induced platelet aggregation in MSG-obese rats. Ingestion of MSG in adult male rats produced platelet hyperaggregation, hyperinsulinemia, hypertension and endogenous obesity and hence could be responsible for the initiation of atherosclerosis. These findings raise a concern about the safety of MSG use.

143- MODULATIONS OF METABOLISM AND REPRODUCTIVE FUNCTION IN WOMEN WITH POLYCYSTIC OVARIAN SYNDROME AND INCREASED BODY WEIGHT WHEN USING TAURIN

T.A. Zykova; Alexandra Vitalievna Strelkova; Lidya Vladimirivna Uledova; Illa Nikolaevich Zykov

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Originality. Taurin can modulate glucose levels. The aim of research is determination of taurin effects in women with PCOS and increased body weight.

Methods. There were examined 20 women at the age from 18 till 35 with BMI ≥ 25 kg/m². All subjects received treatment by tauring (Dibicor) during 12 weeks. There were performed oral glucose tolerance test and ultrasound monitoring of ovaries.

Analysis. Statistical analysis was made using Wilcoxon signed rank test.

Results. Taurin improves beta cells function both in the first phase (–1st Phase) before 343,3 [400.6; 21.7], after 408.5 [542.2; 230.6], p=0.012 and the second phase (–2st Phase) before 124.2 [127.2; 126.4], after 133.7 [131.6; 124.6], p=0.018, increases insulin sensitivity of peripheral tissues (ISITTU) (before 0.176 [0.187; 0.160], after 0.187 [0.194; 0.175], p=0.036), decreases hyperinsulinemia after 30 insulin before 131.8 [42.7; 189.6] μU/ml, after 98.8 [38.7; 132.9] μU/ml, p=0.026, 180 insulin before 34.4 [9.4; 74.7] μU/ ml, after 19.3 [13.7; 46.9] μU/ml, p=0.032 minutes of glucose intake and decreases glucose levels after 30 (before 9.05 [7.3; 10.2] mmol/l, after 8.1 [7.0; 9.4] mmol/l, p=0.011), 60 (before 9.6 [7.2; 13.1] mmol/l, after 6.9 [5.6; 9.4] mmol/l, p=0.023), 180 (before 8.6 [5.8; 10.1] mmol/l, after 5.6 [4.7; 8.0] mmol/l, p=0.036) minutes and accelerates peripheral glucose clearance (MRCSTUM) (before 9.54 [10.04; 8.3], after 9.95 [10.2; 29.7], p=0.032). This changes are accompanied by reduction of menstrual cycle duration in 35%.

Conclusion. Thus treatment by "Dibicor" modulates metabolic disorders in patients with PCOS and increased body weight, which is accompanied by positive changes in reproductive system.

144- SPERM PATHOLOGY IN MEN WITH METABOLIC SYNDROME

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The unfavorable demographic situation and Western world’s ‘obesity epidemic’ are recognised as one of the key problems of society. Three main biological mechanisms linking obesity to impaired male reproductive function: hypogonadism, testicular heat stress/hypoxia-induced apoptosis and endocrine disruption. Objective. Assess parameters of sperm in men with metabolic syndrome.

Materials and methods. Changes in sperm of 30 men with metabolic syndrome were analyzed when they applied to the Center of Family Planning in Arkhangelsk with complaints of infertility in marriage. Diagnosis of metabolic syndrome was confirmed in the case of central obesity and at least two of the following additional features: high triglycerides level ≥ 1.7 mmol/l or normal level when receiving appropriate therapy, hypertension or normal blood pressure, controlled by drugs, higher level of plasma glucose 5.6 mmol/l or presence of diabetes.

Results. The average age of patients was 33.8±8.0, the average weight 96.7±8.0. We excluded patients with diseases that led to additional reduction fertility of sperm, abnormalities of sexual organs, sexually transmitted infections, inflammatory diseases of genital organs. When analyzing spermograms the following data is obtained: the volume of semen was on the average 3.75ml [1.72; 4.80], concentration of spermatozoa in 1 ml was ~ 46.00 million [20.00; 68.5], active-motile - 10.50% [4.25; 15.50], morphologically normal forms reported in 64.50 % [55.25; 76.25], and the number of live sperm was ~ 64.00% [47.25; 75.50].

Conclusions. Among men with metabolic syndrome there are changes identified in the form of sperm – astenozoospermia with reduction of number of progressive-mobil sperm.

Disclosures List

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