2016 14th International Primary Care Diabetes Europe Conference

PCDE
primary care diabetes europe

29-30 April **2016**
Barcelona (Spain)

Personalized care in daily practice

Final programme
Abstracts book

www.2016pcdeconference.org www.pcdeurope.org

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Welcome

Dear Participants,

We are delighted to welcome you to the 14th **International Primary Care Diabetes Europe Conference** again in Barcelona, on 29th and 30th April 2016. It is the third meeting here in the same format and the same venue, repeating the success formula from previous years.

This success is above all due to you, our valued participants, who are working mainly in the primary care field and also have an interest in complex care delivery for people living with diabetes.

The theme of this year's conference is "Personalized Care in Daily Practice" and builds on current evolutions where people living with diabetes are in charge of their own care and participate in decision-making about lifestyle choices, prioritizing and targeting cut-offs, as well as medicines and follow-up plans. Besides, these people are not suffering from diabetes alone, but often have other (chronic) conditions to deal with. It is up to primary care to guide and coach this complexity.

Primary Care Diabetes Europe (PCDE) can be your guide and coach. As a leading pan-European platform we see our role in expanding educational activities as increasingly important, particularly now that primary care is supposed to take more and more responsibility in the global burden of (type 2) diabetes from a multidisciplinary approach.

Due to your growing interest we can offer you very instructive, state-of-the-art lectures by leading authorities in diabetes. You are invited to present your own research outcomes in poster presentations and discuss the results with your peers (during the Poster Walk). We will also be honouring a promising young researcher and rewarding a leading international initiative which is successfully working on the field of governance for health promotion and secondary prevention against diabetes.

With thanks the hard work of the entire organising team, it is an honour to announce the EACCME European Accreditation to this conference for up to 9 CME credits.

With thanks our valued sponsors, we can offer you some additional satellite symposia, as an extension to the conference, both of them focussing on new therapeutic options which aim to overcome the existing barriers to treatment.

As a primary health care professional involved in the management of people living with diabetes, this conference is an educational programme you can't miss.

We hope you will enjoy it.

On behalf of the scientific and organizing committees,

Johan Wens
Chair of PCDE

It is an honour for us to be hosting the Primary Care Diabetes Europe Conference again, safe in the knowledge that everyone attending will fully enjoy the city.

All of you deal with one of the most important non-communicable diseases, which is now considered an epidemic. In Catalonia, over 800,000 people are affected by some form of diabetes, whether they know it or not. And for years, a successful healthcare system and the hard work of all its professionals have been addressing this challenge.

Today we know that living with diabetes isn't easy. But primary care has revealed what a fine job could be done: by staying close to the patients and the community, monitoring diabetes epidemiology, managing people's habits and way of life. So with all the challenges ahead, we are well aware that the approach to type 2 and type 1 diabetes improves when professionals and patients are empowered, well trained and informed about the illness.

In this context, primary care could emerge as the best clinical level to make a big step towards diabetes prevention, diagnosis, management, education and even research: a privileged environment to achieve a better health and quality of life for all European citizens living with this condition.

In Barcelona, and in many countries, poverty and obesity are linked to this disease, because of living conditions, bad control of symptoms, or barriers to access healthcare facilities. So it is necessary to empower the public so that they can deal with this complex situation in the near future, because people affected with diabetes are predicted to increase over the coming decade throughout Europe, leading to a completely new scenario. We can't ignore this evidence. By turning the situation around and reducing the social conditions behind health inequalities we can guarantee better outcomes.

And finally, as you well know, Barcelona is emerging now as a city of innovation in the life sciences, attracting talented biomedical researchers and projects. These positive trends deliver a time of opportunities for all the professionals working in primary care: an important part of the public healthcare system that needs to be improved and defended in our countries.

By hosting the next Primary Care Diabetes Europe Conference we feel honoured and proud to contribute to the fight against diabetes, expecting much better health for our families, friends and citizens.

Gemma Tarafa Orpinell
Commissioner of Health
Barcelona City Council

Dear Colleagues,

It is a pleasure to welcome you again to the International Primary Care Diabetes Europe Conference (PCDE) here in Barcelona.

When we had the last International PCDE Conference in Barcelona, just two years ago, the number of people around the world afflicted with type 2 diabetes was 382 million (56 million in Europe) and this figure was expected to rise to 592 million in 2035. The number of people with type 2 diabetes has continued to increase worldwide and has already reached 415 million (59.8 million in Europe). Diabetes has become one of the 10 leading causes of death in the world, and the grim prediction is that the number of people who will have diabetes in 2035 is 642 million. Thus, the diabetes epidemic continues to worsen.

In Catalonia, the prevalence of diagnosed diabetes is 7.64% in subjects over 30, and above 20% in those over 70, representing a major challenge to our national health system. The personal, social and economic costs of diabetes and its associated complications are overwhelming. Prevention, early diagnosis, and immediate appropriate treatment of the disease and its complications are essential steps in the fight against diabetes. The role of primary care in all these aspects cannot be overemphasized. As in previous meetings, the International PCDE Conference provides an excellent environment and opportunity to move forward in the promotion of diabetes education and research in primary care and to incorporate the most recent findings into current practice.

I hope that the 14th International PCDE Conference will fulfil your expectations, and I wish you a very successful meeting, and a pleasant stay in Barcelona.

Eduard Montanya
President of the Advisory Committee on Diabetes
Department of Health, Catalan Government

Committees

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Dr. José Javier Mediavilla Bravo (SEMERGEN)

About PCDE

Primary Care Diabetes Europe (PCDE) exists to provide a focal point for primary care clinicians and their patients. Its purpose is to promote high standards of care for people living with diabetes throughout Europe. Emphasis is placed on incorporating evidence-based medicine into daily practice as well as promoting diabetes education and research in primary care.

PCDE was founded according to the objectives of the Saint Vincent Declaration (1989). A group of interested primary care physicians met in Athens (1995) and established a first meeting in Lisbon (1996), formalising accepted objectives, a constitution, an action plan and a chosen committee. From 2005 onwards, the association was recognised officially by Belgian law as an international non-profit organisation.

Individual membership is open to all professionals working in Primary Diabetes Care. The current membership stands at about 4,000 individuals sharing an interest in primary diabetes care, 2,500 of whom are subscribers to PCD Journal. Membership of the General Assembly is open to all professional members of PCDE by candidacy. As many countries as possible are encouraged to be represented in the General Assembly. The total number of executive committee members is limited to 12. The General Assembly votes for their representation on the Executive Committee.

Through successful activities and a leadership position in the field, PCDE has an interface role between primary and secondary diabetes care organisations regarding research, education, clinical practice and health care governance, aiming for a better quality of diabetes care in the community.

As such, PCDE has the unique opportunity of being the official **Diabetes Special Interest Group of WONCA-Europe**. PCDE also promoted the creation of a Primary Care Research Group with in European Association for the Study of Diabetes (EASD) which was accepted in 2007, and resulted in the establishment of the EASD Primary Care Diabetes Study Group. These efforts resulted in PCDE's participation in different European research projects such as SWEET, CALLIOPE, IMAGE, DIAMAP, TRANSFORM and others...

To communicate scientific research results, PCDE launched its own research journal *Primary Care Diabetes* which is published by Elsevier and with Jaakko Tuomiletho as editor-in-chief. Only five years after publication of the first issue, the journal is now indexed in Pubmed, PsycInfo and Skopus. The journal was recently awarded a science citation index which currently stands at 1,325.

In addition to its research activities, PCDE also impacts on European policy level in its **consultancy position** in different national and international organisations. The European Coalition for Diabetes (ECD) has been established since 2010, together with the Federation of European Nurses in Diabetes (FEND), the International Diabetes Federation (IDF) and EURADIA, the coordinating research arm of the EASD. The ECD now is in constant communication with different members of the European Parliament and various partners in the European Commission in charge of all aspects of health care governance and research.

Board Members

Chair: Prof. Dr. Johan Wens

Chair-elect: Assoc. Prof. Dr. Xavier Cos

Vice Chair-elect: Prof. Dr. Pinar Topsever

Boardmember Treasurer: Prof. Dr. Luc Martinez

General Assembly Members: Dr. Samuel Seidu
Mrs. Guusje Neijens
Prof. Imre Rurik
Dr. Martin Hadley-Brown
Dr. Gerardo Medea

Operational Manager: Mrs. Ottilia Hoogeslag

More information is available on our websites

- PCDE Website: **http://www.pcdeurope.org**
- PCDE Conference site: **http://www.2016pcdeconference.org**
- Primary Care Diabetes Journal: **http://www.primary-care-diabetes.com**
- The online manuscript submission site for the journal is live at: **http://ees.elsevier.com/pcd/**

CME Accreditation

The **14th International Primary Care Diabetes Europe Conference** was granted **9** European CME credits (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME).

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 *14th International Primary Care Diabetes Europe Conference* 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 *14th International Primary Care Diabetes Europe Conference* is designated for a maximum of 9 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.

Through an agreement between the European Union of Medical Specialists and the American Medical Association, physicians may convert EACCME credits to an equivalent number of AMA PRA Category 1 Credits™. Information on the process to convert EACCME credit to AMA credit can be found at www.ama-assn.org/go/internationalcme.

Live educational activities, occurring outside of Canada, recognized by the UEMS-EACCME for ECMEC credits are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of The Royal College of Physicians and Surgeons of Canada.

EACCME Credits

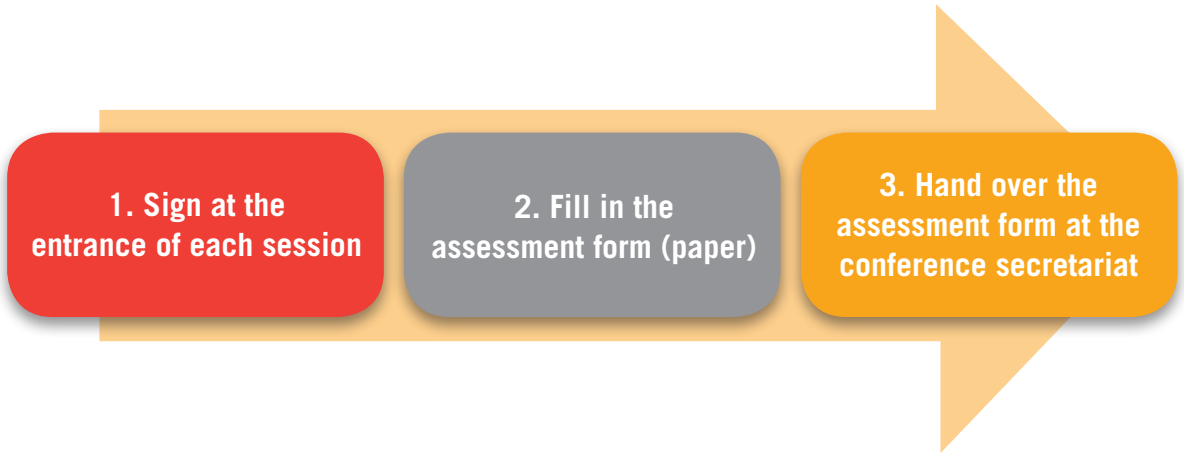
Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity. The EACCME credit system is based on 1 ECMEC per hour with a maximum of 3 ECMECs for half a day and 6 ECMECs for a full-day event.

Spanish Accreditation

The accreditation of the *14th International Primary Care Diabetes Europe Conference* has been requested also to the Catalan Board for the Ongoing Training of Healthcare Professions (CCFCPS).

A minimum of 80% of attendance to the whole conference will be required to obtain the CFC credits and the certificate.

Process to obtain *EACCME Accreditation*



When do I have to sign?

TIME	PLENARY MEETING ROOM	
09.00 - 09.15 h	Opening ceremony	
09.15 - 10.00 h	Session 1 - OBESITY	Block 1
10.00 - 10.45 h	Session 2 - MENTAL HEALTH	
10.45 - 11.30 h		
11.30 - 12.30 h	Session 3 - HYPOGLYCAEMIA FROM PATIENT PERSPECTIVE	Block 2
12.30 - 13.00 h	Session 4 - PAUL CROMME LECTURE	
13.00 - 14.30 h		
14.30 - 15.30 h	Session 5 - ADHERENCE	Block 3
15.30 - 17.00 h	Session 6 - MULTIMORBIDITY	

Delegate	Passport nr.	BLOCK 1 09.15 - 10.45 h	BLOCK 2 11.30 - 13.00 h	BLOCK 3 14.30 - 17.00 h
Cahill, Richard	845220019			
Campbell, Susan	755469215			
Castillo, Eduardo	16025478G			
Castle, Henry	245663300			
Castro, Amparo	770533699X			

Daily Planner

FRIDAY, 29 APRIL 2016

TIME	PLENARY MEETING ROOM (MR 09)	SYMPOSIA MEETING ROOM (MR 10)
07.30 - 09.00 h	REGISTRATION	
09.00 - 09.15 h	**Opening Ceremony**	
09.15 - 10.00 h	**SESSION 1 - Obesity** *(Joima Panisello, Guusje Neijens, Josep Vidal)*	
10.00 - 10.45 h	**SESSION 2 - Mental Health** *(Ignacio Conget, Pemra C. Ünalan)*	
10.45 - 11.30 h	**Coffee Break & Poster Walk 1 (MR 05 + 06)**	
11.30 - 12.30 h	**SESSION 3 - Hypoglycaemia from a patient perspective** *(Luc Martinez, Kamlesh Khunti, Martin Hadley-Brown)*	
12.30 - 13.00 h	**SESSION 4 - Paul Cromme lecture** *(Keith Vaz)*	
13.00 - 14.30 h	**Lunch**	**Lunch Industry-sponsored Satellite Symposium** (see p. 55)
14.30 - 15.30 h	**SESSION 5 - Adherence** *(Luc Martinez, Samuel Seidu, Gérard Reach)*	
15.30 - 17.00 h	**SESSION 6 - Multimorbidity** *(Arno W. Hoes, Pinar Topsever, Carl Llor, Pemra C. Ünalan, Johan Wens)*	
17.00 - 19.00 h		**Afternoon Industry-sponsored Satellite Symposium** (see p. 55)

SATURDAY, 30 APRIL 2016

TIME	PLENARY MEETING ROOM (MR 09)	SYMPOSIA MEETING ROOM (MR 07 + 08)
07.45 - 08.45 h		**Breakfast Industry-sponsored Satellite Symposium** (see p. 56)
09.00 - 09.45 h	**SESSION 7 - Rising star lecture** *(Paula Koekkoek)*	
09.45 - 10.45 h	**SESSION 8 - Oral presentation of 5 best abstracts**	
10.45 - 11.15 h	**Coffee Break & Poster Walk 2 (MR 05 + 06)**	
11.15 - 11.45 h	**SESSION 9 - Diabetes in the older person with co-morbidities** *(Eugene Hughes)*	
11.45 - 12.45 h	**SESSION 10 - Drugs** *(Kamlesh Khunti, Manel Mata, Guy Rutten)*	
12.45 - 13.00 h	**Closing Ceremony**	
13.00 h	**Reception (informal drink and "tapas")**	

Scientific Programme

FRIDAY, 29 APRIL

08.00 - 09.00 h **REGISTRATION**

09.00 - 09.15 h **OPENING CEREMONY**

09.15 - 10.00 h **SESSION 1. Obesity** (p. 14)
Chair: *Johan Wens*

- Diet/Behaviour modifications in obesity management for the treatment of type 2 diabetes
  Joima Panisello (Spain)
- Physical activity in type 2 diabetes
  Guusje Neijens (Netherlands)
- Bariatric surgery
  Josep Vidal (Spain)

10.00 - 10.45 h **SESSION 2. Mental health** (p. 16)
Chair: *Johan Wens*

- Hypoglycaemia and diabetes. Consequences and management
  Ignacio Conget (Spain)
- Importance of the informal caregiver
  Pemra C. Ünalan (Turkey)

10.45 - 11.30 h ***Coffee break & Poster Walk 1***

11.30 - 12.30 h **SESSION 3. Hypoglycaemia from a patient perspective** (p. 17)
Chair: *Johan Wens*

- Insulin and post prandial
  Luc Martinez (France)
- Epidemiology of hypoglycaemia in clinical practice
  Kamlesh Khunti (UK)
- Self management and out of hours care of hypoglycaemia
  Martin Hadley-Brown (UK)

12.30 - 13.00 h **SESSION 4. Paul Cromme Lecture. Empowering diabetics** (p. 19)
Chair: *Johan Wens*
Speaker: *Keith Vaz* (UK)

13.00 - 14.30 h ***Lunch***

14.30 - 15.30 h **SESSION 5. Adherence** (p. 20)
Chair: *Xavier Cos*

- Introduction
  Luc Martinez (France)
- Therapeutic inertia
  Samuel Seidu (UK)
- Patient adherence: a major issue in contemporary medicine
  Gérard Reach (France)

15.30 - 17.00 h **SESSION 6. Multimorbidity** (p. 22)
Chair: *Xavier Cos*

- Should we screen for heart failure in patients with diabetes?
  Arno W. Hoes (Netherlands)
- A tale of two diseases: diabetes and cancer
  Pinar Topsever (Turkey)
- Respiratory tract infections in diabetes
  Carl Llor (Spain)
- Sexual health, contraception
  Pemra C. Ünalan (Turkey)
- LDL targets
  Arno W. Hoes (Netherlands)
- Polypharmacy
  Johan Wens (Belgium)

SATURDAY, 30 APRIL

09.00 - 09.45 h **SESSION 7. Rising star lecture. Cognitive dysfunction in type 2 diabetes: an important problem** (p. 26)
Chair: *Samuel Seidu*

Speaker: *Paula Koekkoek* (Netherlands)

09.45 - 10.45 h **SESSION 8. Oral presentation of 5 best abstracts** (p. 26)
Chair: *Samuel Seidu*

The five best abstracts selected from the abstracts accepted by the Scientific Committee of the Conference will be presented orally in this session.

10.45 - 11.15 h ***Coffee break & Poster Walk 2***

11.15 - 11.45 h **SESSION 9. Diabetes in the older person with co-morbidities** (p. 26)
Chair: *Xavier Cos*

Speaker: *Eugene Hughes* (UK)

11.45 - 12.45 h **SESSION 10. Drugs** (p. 27)
Chair: *Xavier Cos*

- Sodium-glucose cotransporter 2 (SGLT2) inhibitors
  Kamlesh Khunti (UK)
- GLP-1 receptor agonists
  Manel Mata (Spain)
- New insulins
  Guy Rutten (Netherlands)

12.45 - 13.00 h **CLOSING CEREMONY**
Chair: *Johan Wens*

13.00 - 14.00 h ***Reception (informal drink & "tapas")***

Lecture Summaries

FRIDAY, 29 APRIL

■ SESSION 1. OBESITY

Time 09.15 - 10.00 h
Room MR 09

Lectures

- **Diet/Behaviour modifications in obesity management for the treatment of type 2 diabetes**
  Joima Panisello
- **Physical activity in type 2 diabetes**
  Guusje Neijens
- **Bariatric surgery**
  Josep Vidal

Diet/Behaviour modifications in obesity management for the treatment of type 2 diabetes

Speaker

Joima Panisello is a clinician with over 25 years' experience working as a physician specializing in internal medicine, Since 2006 she has been invited professor of metabolic clinical disorders and anti-aging at the University of Barcelona. She has special expertise in communication skills and empowering patients to achieve better results in the field of obesity and cardiovascular disease through diet and lifestyle changes. She has chaired the FUFOSA Health Foundation since 2006. This institution has been actively involved in the National Obesity Plan and the NAOS (nutrition, physical activity and obesity prevention) strategy.

Summary

"It is more important to know what type of person has the disease than to know what type of disease the person is (suffering) because one size does not fit all!"

There is strong and consistent evidence that obesity management can delay progression from prediabetes to type 2 diabetes and may be beneficial in the treatment of type 2 diabetes. Weight loss should occur early in the natural history of type 2 diabetes when obesity-associated insulin resistance has caused reversible b-cell dysfunction but insulin secretory capacity remains relatively preserved. In overweight and obese patients with type 2 diabetes, modest and sustained weight loss has been shown to improve glycaemic control and to reduce the need for glucose-lowering medications; although the feasibility of achieving and maintaining long-term weight loss in these patients is not easy.

Who is my patient? What are his values? What is his diary schedule like? Does he like to cook? Does he have enough time to do it? What products are in his shopping cart? Does he know how to read food labels? Does having this information affect food selection or not?

– To have all this information clear will be crucial because:
– Diet physical activity and behavioural therapy designed to achieve 5% weight loss should be prescribed for overweight and obese patients with type 2 diabetes (if they are ready to go for it!)
– There is no single ideal dietary distribution of calories among different macronutrients.
– Such interventions should be intensity (at least 16 sessions in 6 months) and focus on diet, physical activity, and behavioural strategies to achieve a 500-750 Kcal/day energy deficit.
– For patients who achieve short-term weight loss goals, long-term comprehensive weight maintenance programs should be prescribed. High levels of physical activity (200-300 min/week) will be crucial. Digital technology solutions, like the Medtep platform, should prove their value as a valid method for collecting patient data and patients' understanding, and can serve as an efficient solution to help patients' recovery and obtain better results.
– An individual management nutritional therapy programme is recommended for all people with type 2 diabetes, although the Action for Health in Diabetes (Look AHEAD) trial did not show that an intensive lifestyle intervention reduced cardiovascular events in overweight or obese adults with type 2 diabetes.

– Because diabetes nutrition therapy can result in cost savings and improved outcomes (e.g. A1C reduction), MNT should be adequately reimbursed by insurance and other payers.

Then if we roughly know what to do; but maybe we don't know exactly how to do it, this could be the solution. Go ahead: Let it happen.

Let's do it early, structurally, in an intensively personalized way and with enjoyment. And with his/her values and preferences: the patient must be the new acting chief.

Physical activity in type 2 diabetes

Speaker

Guusje Neijens has been a diabetes nurse specialist since 2001 and holds an MSc in care trajectory design. He has experience in primary care, secondary care and paediatric diabetes care. He is currently employed at the University Medical Centre Utrecht/ Wilhelmina Children's Hospital. He sits on advisory boards for health literacy, education, wound care, cystic fibrosis-related diabetes (CFRD) and care trajectories. He is the founder of the SANA group Deventer which combines diabetes education and physical exercise programmes. He is involved in public programmes on access to lifestyle education. He is also the founder of the D-Support Foundation which organizes informal support for families with diabetic children. He has been a board member of Primary Care Diabetes Europe (PCDE) since 2009. He was previously the chair of the Primary Care Expertise Group of the Dutch Association of Diabetes Nurses (EADV), and was policy advisor to the Dutch Diabetes Association (DVN). He has also been involved in the Dutch national action program for diabetes (NAD). Neijens: "My driving force is the connection to the world of the patient as part of the treatment. This is recognizable in all my activities."

Summary

In this lecture we analyse the myths and beliefs about physical activity. Seen from both perspectives: the GP trying to "move" her patient and, at the opposite end of the spectrum, the patient who is motivated to be healthy but not necessarily to exercise. How can we become a partner in fighting hyperglycaemia and insulin resistance. There is the perspective of all levels of prevention from primary prevention to those who suffer movement restriction by joint problems, neuropathy, stroke, morbid obesity and visual impairment.Outcomes of this lecture are useful insights for your daily practice in successful personalized interventions, motivational strategies and clear goalsettings for better diabetes outcome.

Bariatric surgery

Speaker

Josep Vidal obtained his medical degree from the University of Barcelona. He trained as a resident in endocrinology and nutrition at the Hospital Clínic in Barcelona. He obtained his PhD from the University of Barcelona in 1998 following the study of the genetic basis of type 2 diabetes mellitus. He completed his post-doctoral training at the University of Washington (Seattle, Washington, USA).

In 2001, Josep Vidal was appointed attending physician at the Department of Endocrinology and Nutrition of the Hospital Clínic in Barcelona. He has been working at this department ever since. Since 2005, Josep Vidal has been head of the Obesity Unit. Since 2010, he has also been head of the Department of Endocrinology and Nutrition.

Dr. Vidal's main field of research is the study of the mechanisms underlying the health benefits of bariatric surgery. Specifically, he has significantly contributed several studies on the role of gastrointestinal hormones in the improvement of glucose tolerance and weight loss following Roux-en-Y gastric bypass and sleeve gastrectomy. He has contributed more than 75 peer-reviewed manuscripts in the field of diabetes and obesity.

Josep Vidal has served in the board of directors of the Spanish Society for the Study of Obesity and as a member of the Obesity Study Group at the Spanish Society of Endocrinology and Nutrition. Josep Vidal has been associate professor at the Department of Medicine of the University of Barcelona since 2009.

Summary

Despite the fact that the therapeutic armamentarium for type 2 diabetes (T2D) has increased in recent years, improving the health outcomes of hyperglycaemia remains a big challenge. In recent years, several randomized clinical trials have challenged state-of-the-art drug therapy against bariatric surgery as therapy for T2D. Importantly,

in these randomized clinical trials surgical techniques initially designed to help patients lose weight have proven more effective than drug therapy to achieve metabolic targets. Notwithstanding, this has illustrated the tight links between T2D and obesity as well as clearly shown the importance of excessive adiposity for many of the health burden associated with T2D. From the clinical care perspective, the results of those clinical trials has opened up heated discussions on the acceptance of bariatric surgery as a therapeutic tool in the T2D algorithm, as well as the best-placed surgical approach in that algorithm. In my lecture, I'll review the basics of bariatric surgery, its impact on health outcomes and the mechanisms underlying such beneficial effects. I do hope this will help health professionals attending the conference position bariatric surgery in the treatment of morbid obesity, position bariatric surgery in the treatment of type 2 diabetes mellitus, and understand the relevance of weight loss to the health outcomes of bariatric surgery.

Learning objectives:

– To review the basics of bariatric surgery.

– To review the impact of bariatric surgery on health outcomes.

– To review the mechanisms underlying such beneficial effects.

Learning outcomes: to help health professionals attending the conference:

– To position bariatric surgery in the treatment of morbid obesity.

– To position bariatric surgery in the treatment of type 2 diabetes mellitus.

– To understand the relevance of weight loss to the outcomes of bariatric surgery.

■ SESSION 2. MENTAL HEALTH

Time 10.00 - 10.45
Room MR 09

Lectures

- **Hypoglycaemia and diabetes. Consequences and management**
  Ignacio Conget
- **Importance of the informal caregiver**
  Pemra C. Ünalan

Hypoglycaemia and diabetes. Consequences and management

Speaker

Ignacio Conget obtained his medical degree from the Autonomous University of Barcelona and his PhD from the University of Barcelona. He is senior consultant at the Diabetes Unit in the Endocrinology and Nutrition Department at the Hospital Clínic in Barcelona and associate professor of endocrinology at the University of Barcelona School of Medicine. Dr Conget is a researcher at the August Pi i Sunyer Biomedical Research Institute (IDIBAPS) and the Spanish Biomedical Research Centre in Diabetes and Associated Metabolic Disorders (CIBERDEM). Dr Conget is an expert at the European Medicines Agency and the Spanish Agency of Medicines and Health Products (AEMPS). Among his other responsibilities, he directs the CSII and sensor augmented CSII program in the Diabetes Unit of the Hospital Clínic in Barcelona. Since 2010 he has been editor-in-chief of *Avances en Diabetiología*, the Journal of the Spanish Diabetes Association (*Endocrinología y Nutrición* since 2015).

Dr. Conget's research activities have included clinical/basic investigation in the field of type 1 and type 2 diabetes: pathophysiology, prevention, islet transplantation, cardiovascular risk evaluation, consequences and treatment of hypoglycaemia and new modalities of treatment, including artificial pancreas. Dr Conget has published more than 180 papers in the field of diabetes in peer-reviewed Journals.

Summary

Hypoglycaemia associated with glucose-lowering therapy represents a significant barrier to the successful treatment of all types of diabetes. Iatrogenic hypoglycaemia causes recurrent morbidity in most people with the disease. Likewise, it is an obstacle to the maintenance of euglycaemia over a lifetime and thus precludes euglycaemia's long-term benefits. In addition to this, severe hypoglycaemia has recently been associated with increased risk of a range of adverse cardiovascular outcomes. Despite of all of this, hypoglycaemia is usually undiagnosed and unrecognised as a crucial part of diabetes management.

Learning objectives:

– To update the definition, diagnosis and potential consequences of hypoglycaemia related to diabetes management.

– To address the prevention and treatment of hypoglycaemia in patients with Diabetes.

Learning outcomes:

– To recognise the burden of hypoglycaemia and its consequences, as well as the importance of its diagnosis and recognition as part of diabetes treatment.

Importance of the informal caregiver

Speaker

Pemra C. Ünalan, MD completed her postgraduate training in family medicine in 1996 at the Şişli Etfal Public Hospital in Istanbul and worked as a family physician at the Ministry of Health, Mother and Child Health Care Centers between 1996-1998. She then began her academic career at Marmara University Medical Faculty Department of Family Medicine as a trainer. She completed another MSc in 2009 in medical biology and genetics at the Marmara University Health Sciences Institute with a thesis entitled "Genetic Consultancy for Women Who Have Risk of Familial Breast Cancer: Baseline Situation in Turkey and a Model Suggestion". She became associate professor in 2010 and has been appointed Professor in 2016.

Her major educational and clinical interest is in medical education, elderly care, home care, mental health, behavioural approach and preventive medicine. Her interest in under- and postgraduate medical education led to her appointment as coordinator of an innovative program called Introduction to Clinical Practice as part of the Marmara Medical School undergraduate medical education program for 14 years. She also worked as the head of the Coordinators' Council between 2010-2013. She has been a direct member of the Turkish Family Medicine Specialists' Association (TAHUD) since 1993 and was elected head of the Istanbul branch in 2010. She is also a direct member of the World Organization of Family Doctors (1998) and the European General Practice Research Network (EGPRN) (2009). She is an experienced medical teacher and a clinical tutor who was elected a fellow of TAHUD in 2009. She is interested in working for non-governmental organizations too. She sits on the board of the Home Care Society and Breast Health Society in Turkey.

Summary

Elderly patients and other housebound patients who have many limitations in activities of daily living are fragile. They have significant needs besides the treatment of their chronic diseases.

Many of them also have health conditions such as Alzheimer's disease or other dementia, cerebrovascular problems, especially stroke sequelae or terminal cancer problems and palliative care needs. These dependent patients require intensive care wherever they live. Although their caregivers are only too happy to look after them, they bear immense burdens. Emotional strain, lack of time for oneself, and physical stress are the common caregiving burdens reported by caregivers.

We will review the characteristics of the patients and also the caregiver population who both need care. This will help us further our understanding of the importance of informal caregivers in looking after dependent older adults and the value of the work done by informal caregivers in assisted home care. The literature showed that caregiver support and community resources help caregivers to provide care longer and help to delay or prevent nursing home placement. This discussion will help us plan programs and services to alleviate caregiving burdens and stresses and provide longer and higher-quality care.

■ SESSION 3. HYPOGLYCAEMIA FROM A PATIENT PERSPECTIVE

Time 11.30 - 12.30
Room MR 09

Lectures

- **Insulin and post prandial**
  Luc Martinez
- **Epidemiology of hypoglycaemia in clinical practice**
  Kamlesh Khunti
- **Self management and out of hours care of hypoglycaemia**
  Martin Hadley-Brown

Insulin and post prandial

Speaker

Luc Martinez, MD is professor of general practice at the Department of General Medicine of Pierre and Marie Curie University and has a private practice in Bois d'Arcy, France. He has been vice-president of the French Society of General Medicine (SFMG) since 2000.

Prof. Martinez has served on the Scientific Committee of the French National Board of Continuing Medical Education and was appointed as a member of the French National Authority for Health in 2005. He had previously served on the authority's committee in charge of delivering clinical practices and then on its Committee of Economics and Public Health Assessment until 2012.

Prof. Martinez engaged in clinical research in 1996, acting first as regional coordinator (implementation of 16 phase IIB and phase III clinical trials) and then as principal investigator (3 French clinical trials). He began his international clinical research activity in 2001, as a member of the steering committee for the development of inhaled insulin. He then continued his involvement in diabetes clinical research and validated a self-administered questionnaire aimed at exploring motivation, fears, and barriers towards insulin injection therapy (Luc Martinez et al. Health Qual Life Outcomes. 2007)

Prof. Martinez received his medical degree from the Medical College of the University of Paris. He has authored or co-authored more than two dozen publications in English- and French-language journals and has been a speaker at many society meetings and workshops.

Summary

Learning objectives:

– To increase physicians' awareness of the importance of postprandial glucose control.

– To identify when to intensify therapy in patients receiving basal insulin.

– Basal-bolus insulin versus premix insulin analogs: which regimen to choose?

Learning outcomes:

– To assess the postprandial plasma glucose when HbA1c is not a goal for a patient under basal insulin.

– To contrast fasting plasma glucose with post prandial plasma glucose to understand the mechanism of poor glycaemic control.

– To get the skills for choosing the insulin regimen that best suits the profile of the patient with diabetes.

Epidemiology of hypoglycaemia in clinical practice

Speaker

Kamlesh Khunti is professor of primary care diabetes and vascular medicine at the University of Leicester. He leads a research group that is currently working on the early identification of, and interventions with, people who have diabetes or are at increased risk of developing diabetes. His work has influenced national and international guidelines on the screening and management of people with diabetes. He is director of NIHR CLAHRC East Midlands and co-director of a clinical trial unit. He is a NIHR senior investigator and principal investigator on several major national and international studies. Professor Khunti is currently an advisor to the Department of Health, a clinical advisor for the National Institute for Health and Care Excellence (NICE), and secretary of the Primary Care Study Group of the European Association for the Study of Diabetes (EASD). He is past chair of the Department of Health–RCGP Committee on Classification of Diabetes and is currently chair of the NICE guidelines on the prevention of diabetes. In addition, he is co-director of the diabetes MSc at Leicester University and the BMJ diabetes diploma.

Summary

The aim of treating diabetes is to control blood glucose to reduce the risk of diabetes-related complications; however, lowering HbA_{1c} comes with the attendant risk of hypoglycaemia. Balancing these risks and benefits and overcoming the barriers for insulin initiation/intensification is a core concern for patients and physicians. Hypoglycaemia is one of the most common yet potentially serious side effects of blood glucose-lowering therapies. Even in its minor form, hypoglycaemia causes unpleasant and embarrassing symptoms including headaches and dizziness. Severe episodes can lead to coma or even death. Irrespective of severity, hypoglycaemia is also associated with an increased risk of adverse events including all-cause mortality, microvascular and macrovascular events. Cardiovascular disease is 2 to 3 times more common in patients with type 2 diabetes than the general population. As hy-

poglycaemia is a relatively frequent occurrence, and can have a negative impact on outcomes, it is important for physicians to act immediately when their patient experiences their first hypoglycaemic event to prevent further episodes. In light of the association between hypoglycaemia and long-term outcomes, reducing the risk and occurrence of hypoglycaemia should be a priority for physicians. Several options are open to health care professionals, for example individualising glycaemic targets or modifying the patient's therapy to one with a reduced risk of hypoglycaemia. In addition to drug selection, a variety of structured education programmes are available that can improve a patient's approach to managing their diabetes care.

Learning outcomes:

– Overview of epidemiology of hypoglycaemia including incidence.

– Impact of hypoglycaemia on patients.

– Methods to overcome hypoglycaemia.

Self management and out of hours care of hypoglycaemia

Speaker

After qualifying at St. Thomas' Hospital Medical School, London, in 1983, **Martin Hadley-Brown** trained in general medicine in and around London before moving from the Renal Unit at St. Thomas's to Dorset to complete GP training. He moved from there to take up a partnership in Thetford, Norfolk in 1989 and became senior partner in the town's eight-doctor School Lane Practice in 1998.

His major clinical interest in diabetes has led to membership of the Professional Advisory Council of Diabetes UK from 2001 to 2006 and to his being a founder member of the Primary Care Diabetes Society in 2003. He was elected chairman of the society in November 2005, completing his term at the end of 2012. He remains a member of the PCDS Executive Committee. He was a member of the UK NICE Guideline Development Groups for the type 2 diabetes guidelines CG66 and CG87 published in 2008 and 2009, and continues to advise both NICE and the Royal College of GPs on diabetes issues.

He is also an experienced medical teacher, being a GP trainer and a specialist clinical tutor in the University of Cambridge Clinical School, and at Hughes Hall, Cambridge. He was elected a fellow of the Royal College of General Practitioners in 2012.

Summary

Aims: To explore current research into the extent of the problem of treatment induced hypoglycaemia in people with diabetes and to discuss management in terms of avoidance and treatment.

Hypoglycaemia has been associated with the treatment of diabetes since the advent of insulin therapy. It is also associated with oral therapies, most notably sulfonylureas. Research into the incidence of hypoglycaemia in people with diabetes has been given new impetus as it has become apparent that not only is the condition extremely unpleasant but it may carry longer term risks than those of the episodes themselves. Trials such as Accord raised questions as to whether 'hypos' have a causative association with higher death rates seen in some aggressively treated groups in diabetes trials. A major UK study is set to clarify the true extent of the problem using data from 'out of hours' service providers. The initial results contain some surprises.

In this session available data will be presented and possible measures to reduce the incidence and impact of hypoglycaemia for people with diabetes explored.

■ SESSION 4. PAUL CROMME LECTURE. EMPOWERING DIABETICS

Time 12.30 - 13.00
Room MR 09

Speaker

Keith Vaz was first elected in June 1987 as the member of parliament for Leicester East and has subsequently been re-elected 7 times. He was the first person of Asian origin to sit in the House of Commons since 1922. Elected as the youngest Labour member of parliament in 1987, he was appointed an opposition spokesman on regeneration and established the City 2020 Commission. In 1997 he was made parliamentary private secretary to the attorney general. He then became a junior justice minister and was quickly promoted to become a minister of state in the Foreign and Commonwealth Office where he helped negotiate the enlargement of the European Union. In 2001 he became the senior Labour member on the justice committee. Keith also served as minister for Europe under Tony Blair.

Keith was elected chairman of the home affairs select committee in 2007 and was re-elected in 2010 and June 2015. He will serve as chairman of the committee until 2020. As a type 2 diabetic, one of Keith's main policy interests is diabetes prevention. He chairs the all party parliamentary group for diabetes, and supports proposed mandatory sugar content reductions and clearer labelling of high sugar products.

Other areas of interest are Yemen and Tamil issues. He is currently the chairman of the all party parliamentary groups for Yemen and founded the all party parliamentary Tamil group. Keith has also been appointed as a member of the joint committee on the national security strategy in the 2015-2020 parliament.

Summary

Diabetes is one of the most important health challenges currently facing the United Kingdom. By 2025 it is estimated that 5 million people in Britain will have diabetes. The Government has included diabetes in its most recent Improvement and Assessment Framework, which is a vital step in the development of a cohesive national diabetes strategy. However there are unexplained variations in diabetes care in the UK. Regional variations in care outcomes have led to a postcode lottery meaning that the quality of care a patient receives is largely dependent on where they live. When compared with their Type 2 counterparts, far fewer Type 1 diabetics achieve all of the recommended care processes and treatment targets set by the NHS. There is a need for tougher action on diabetes in the UK and a new deal for diabetics.

Learning outcomes:

– Overview of variations in care in the UK.

– Impact of these variations on patients.

– Tougher action and new deal for diabetics.

■ SESSION 5. ADHERENCE

Time 14.30 - 15.30
Room MR 09

Lectures

- **Introduction**
  Luc Martinez
- **Therapeutic inertia**
  Samuel Seidu
- **Patient adherence: a major issue in contemporary medicine**
  Gérard Reach

Therapeutic inertia

Speaker

Dr. Samuel Seidu is a practising Leicester city GP. He started his diabetes career at the Ulster Hospital in Belfast as a junior doctor in 2003. He subsequently moved to Leicester, England to train as a GP. He is now a partner, lead undergraduate tutor and GP trainer at the Hockley Farm Medical Practice.

He is a primary care research fellow in diabetes at the University of Leicester and his area of interest is around quality improvement in diabetes care. Due to his expertise in this area, he is a regular reviewer of related articles submitted to peer-reviewed journals like *Diabetes Research and Clinical Practice*, *Diabetic Medicine*, *Primary Care Diabetes Europe* and the *European Journal of Medical Informatics*. He also reviews abstracts related to diabetes submitted for national and international conferences.

He is currently the clinical lead for diabetes care in the Leicester Primary Care Group and is involved in the design and re-configuration of diabetes care in Leicester alongside other clinical leads in primary and secondary care.

He is a faculty member of Collaboration for Leadership in Applied Health Research and Care-East Midlands (CLAHRC-EM) and also held the post of CLAHRC primary care research fellow until February 2013.

He is a member of the Primary Care Academy of Diabetes Specialists in the UK and liaises with other leading GPs with interest in diabetes all over the country to foster understanding on the key elements essential for delivering a diabetes service and the potential challenges involved.

He is also a member of the European Association for the Study of Diabetes (EASD)-Primary Care Diabetes Europe (PCDE) Study Group and is a principal investigator for a number of their studies.

Summary

Type 2 diabetes is a progressive disease with an annual steady decline in beta cell function of 4% (1). As a result of this, patients with longer duration of diabetes are more likely to need more combination treatment regimens including insulin therapy. Furthermore, early intensive therapy has been shown to leave a beneficial glycaemic legacy in terms of cardiovascular and microvascular complications (2). Using long-acting insulin analogues, with easy-to-follow patient-oriented algorithms is safe effective and associated with increased patient satisfaction (3, 4 and 5).

Despite the evidence of the efficacy and endorsement of its early use in guidelines, in practice initiation of insulin is often delayed. In an analysis of data from 10 different countries to determine the timing of insulin initiation in routine clinical practice, the pre-insulin HbA1c ranged from 8.3% in China to 9.8% in UK (6). The barriers could be at the patient level, health care professional level and at the organisational level. Clinical inertia has been described in literature to be due to a lack of up-to-date clinical knowledge on the management of diabetes, lack of training, and practice organisation aimed at achieving therapeutic goals (7). Patients' non-adherence to treatment and health care professionals' non-adherence to guidelines have also been cited (7). The problem of inertia when it comes to insulin initiation and intensification has been well researched in various countries and cultures and the themes have always been the same.

Learning objectives:

– To understand the term therapeutic inertia.

– To explore the variations of therapeutic inertia in Europe.

– To explore whether the causes of inertia go beyond adverse intermediate outcomes.

Learning outcomes:

– Definition of Inertia.

– Levels in the treatment trajectory where inertia occurs in type 2 diabetes.

– Clinical inertia and CV events.

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Patient adherence: a major issue in contemporary medicine

Speaker

Professor Gérard Reach, MD, FRCPEdin is currently professor of endocrinology and metabolic diseases (University Paris 13, Sorbonne Paris Cité) and is the head of the Endocrine Unit at the Hospital Avicenne, Bobigny France. Currently, his main research interest is in the optimization of care: understanding patients' non-adherence and doctors' clinical inertia. He is the author of more than 200 papers indexed in PubMed. Two of his books have recently been published in English by Springer: *The Mental Mechanisms of Patient Adherence to Long-Term Therapies, Mind and Care* (2015, Philosophy and Medicine series), foreword by Pascal Engel, and *Clinical Inertia, a Critique of Medical Reason*, foreword by Jon Elster (2015).

His recent publications include:

- "A psychophysical account of patient non-adherence to medical prescriptions. The case of insulin dose adjustment". *Diabetes Metab.* 2013;39:50-5.
- "Patient autonomy in chronic care: solving a paradox". *Patient Prefer Adherence*. 2013;8:15-24.

- "Clinical inertia, uncertainty, and individualized guidelines". *Diabetes Metab.* 2014;40:241-5.
- "Patient's non-adherence and doctors' clinical inertia: two faces of medical irrationality". *Diabetes Management*. 2015; 5:167-181.
- "Patient Education, Nudge and Manipulation", revised manuscript submitted.
- "Simplistic and complex thought in medicine: the origin of the patient-centered care model", revised manuscript submitted.

Summary

Patient non-adherence refers to a lack of concurrence between a patient's behavior and the prescribed treatment. At each step in the doctor-patient encounter–from making a first appointment, to undergoing screening tests, to taking medications and accepting changes in lifestyle, adherence is an issue: for instance, roughly half of all medication prescriptions are not filled. Non-adherence has been demonstrated repeatedly to erode the effectiveness of medical care and is linked with an increased rate in mortality. It has a major impact on health expenditures. A WHO report concluded that "increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatment." In this lecture, I will show the importance of this phenomenon in terms of frequency, consequence and costs, and will address its psychological causes. I will show that the solution relies on the quality of the patient-HCP relationship.

Learning objectives:

– To understand the implications of non-adherence in type 2 diabetes.

– To understand the factors that influence adherence.

– To understand approaches to improving adherence.

Learning outcomes:

– Non-adherence to long-term therapies is a frequent issue whatever the disease and has major consequences in terms of efficiency of care and health expenditure.

– It is not surprising that patients are often non-adherent.

– A trust-based patient-HCP relationship is the condition of adherence to long-term therapies.

■ SESSION 6. MULTIMORBIDITY

Time 15.30 - 17.00
Room MR 09

Lectures

- **Should we screen for heart failure in patients with diabetes?**
  Arno W. Hoes
- **A tale of two diseases: diabetes and cancer**
  Pinar Topsever
- **Respiratory tract infections in diabetes**
  Carl Llor
- **Sexual health, contraception**
  Pemra C. Ünalan
- **LDL targets**
  Arno W. Hoes
- **Polypharmacy**
  Johan Wens

Should we screen for heart failure in patients with diabetes?

Speaker

Arno W. Hoes studied medicine at the Catholic University Nijmegen. He obtained his PhD from the Erasmus University Rotterdam and trained in clinical epidemiology at the Erasmus Medical Center Rotterdam and the London School of Hygiene and Tropical Medicine.

In 1998 he was appointed professor of clinical epidemiology and general practice at the Julius Center for Health Sciences and Primary Care of the University Medical Center in Utrecht. Since 2010, he has been the chair of the Julius Center.

His clinical research topics include the diagnosis, prognosis and therapeutic interventions in cardiovascular disease, including coronary heart disease, thrombo-embolism and, in particular, heart failure. Many of his studies in heart failure are conducted in the primary care setting and focus on improving early diagnosis and prognosis of heart failure.

He has (co-)authored over 500 papers in peer-reviewed journals (Hirsch index 68) and more than 40 PhD students completed their PhD thesis under his supervision.

Summary

The objectives of this presentation are to learn about (1) the prevalence of previously unrecognized heart failure with reduced and preserved ejection fraction in patients with diabetes, (2) the potential prognostic and therapeutic consequences of uncovering heart failure and (3) whether screening for heart failure can be recommended based on the current evidence and on the well-known Wilson and Jungner criteria.

It will be shown that (1) the prevalence of unrecognized heart failure, and especially heart failure with preserved ejection fraction (HFpEF) is very high in patients with diabetes; (2) co-existence of heart failure has important prognostic and therapeutic implications, albeit that the current therapeutic arsenal for HFpEF is very limited; (3) current clinical guidelines pay no or very limited attention to the early detection of heart failure and that (4) a more active approach to detect heart failure in patients with diabetes is warranted, while it is too soon to advocate large-scale screening programs to detect heart failure in these patients.

A tale of two diseases: diabetes and cancer

Speaker

Dr. Topsever graduated as an M.D. from Istanbul University Cerrahpaşa Medical Faculty in 1988. She finished her residency at Haydarpaşa Numune Training and Research State Hospital in Istanbul to become a family physician in 1999. Between 2000 and 2007, she continued her academic carreer as Assistant Professor at the Department of Family Medicine, Kocaeli University Medical Faculty where she became Associate Professor in 2007. Apart from research, her duties included curriculum development and training of undergraduate medical students, co-directing the family medicine residency programme, and patient care. Since September 2009, Dr. Topsever has been chairing the Department of Family Medicine at Acıbadem University School of Medicine in Istanbul. She became Professor of Family Medicine in 2015. Her fields of interest are diabetology in primary care, epidemiology in the context of health promotion and preventive care, evidence-based medicine and research methodology. She is editorial board member of several peer-reviewed scientific journals, a referee on several scientific award committees and has worked as a clinical referee for the Cochrane Collaboration, as well as for several peer-reviewed scientific journals. Dr. Topsever joined PCDE as a member in 2005, became a GA and working member in 2008, was elected PCDE Executive Board member in charge of research in 2010, chair of the EASD-PCDE study group in 2012 and vice-chair elect in 2016.

Summary

Although, the association between diabetes mellitus and cancer is well illustrated by epidemiological data regarding common risk factors and the concurrent incidence of some cancers with diabetes, allowing for some implications about cancer prevention in diabetic individuals, the issue of drugs used for the treatment of diabetes being related to cancer risk or cancer prognosis is still limited or inconclusive. This presentation will shortly highlight the plausibility for a link between cancer and diabetes in the context of multi morbidity (indirectly mediated due to conditions related to health care, “shared” risk factors, diabetes treatments etc.) and comorbidity (metabolic effects of DM on cancer cells, “reverse causality”), finishing with evidence-based recommendations whether cancer risk should play a role in the preventive and clinical approach (i.e. altering therapy decisions for the average patient) to people with diabetes.

Learning objectives:

– To discuss possible associations between diabetes and cancer.

– To discuss implications for primary care clinical practice.

Learning outcomes: at the end of this session the participants will be able to:

– Discuss the plausibility of a link between DM and Ca (pathophysiology, risk factors).

– Describe epidemiological data (Ca incidence in DM patients).

– Judge diabetes treatment and Ca risk.

Respiratory tract infections in diabetes

Speaker

Carl Llor is a family doctor working as a general practitioner at the Via Roma Primary Health Care Centre in Barcelona and as a researcher in infectious diseases at the Jordi Gol Primary Care University Research Institute in Barcelona. He also worked as associate professor at the Department of General Pathology at the University Rovira i Virgili from 1993 to 2014. His research interests are respiratory tract infections, point-of-care tests in infectious diseases in primary care, chronic obstructive pulmonary disease exacerbations, the rational use of antibiotics, and ethics in research. He is a member of numerous professional societies, including the Spanish Society of Family Medicine (semFYC) and the Spanish Society of Pneumology and Thoracic Surgery (SEPAR). He is also a member of the Study Group for Infectious Diseases in Primary Care in semFYC and a member of the Infectious Diseases Network in Primary Care Group (GRIN, WONCA). Dr Llor has participated in several consensus documents on the management and treatment of respiratory tract infections in Spain and has published numerous papers on the rational use of antibiotics in national and international journals.

Summary

Background

Respiratory tract infections are responsible for a significant number of medical appointments and the number of visits is even higher among diabetic patients, since they have a greater risk of mainly lower respiratory tract infections diagnosed in primary care, including pneumonia, acute bronchitis, influenza, and exacerbations of chronic obstructive pulmonary disease. Infections caused by certain organisms, such as *Staphylococcus aureus*, gramnegatives, and *Mycobacterium tuberculosis*, occur with increased frequency in diabetic subjects. Infections due to common germs causing respiratory tract infections (*Streptococcus pneumoniae* and influenzavirus) are associated with increased morbidity and mortality. Treating physicians should be aware of the modestly increased risk of death in diabetic patients with lower respiratory tract infections.

Pneumonia and influenza

The risk of pneumonia is 1.3 to 1.5 times increased in diabetic patients compared to nondiabetic individuals. Recent epidemiological evidence shows a modest risk increase for hospitalisation with pneumonia associated with diabetes (1.25 to 1.75-fold). Several studies show that longer duration of diabetes and poor glycaemic control increase the risk of pneumonia-related hospitalisation. In addition, an increased risk of death associated with pneumonia hospitalisation in patients with diabetes has also been reported, mainly because diabetes is a risk factor for bacteraemia in patients with pneumococcal pneumonia. Individuals with diabetes are six times more likely to need hospitalisation during influenza epidemics than nondiabetic patients. Prevention is crucial and immunisation with anti-pneumococcal and influenza vaccines is absolutely recommended to reduce hospitalisations, deaths and medical costs.

Tuberculosis

Patients with diabetes are at higher risk of contracting tuberculosis than individuals without diabetes. A systematic review, including 13 epidemiological studies, found that diabetes is associated with 1.5 to 3.2 times more elevated risk of tuberculosis. This increased risk for tuberculosis is more significant in low-income countries, in particular if diabetes is poorly controlled and in patients with associated comorbidities. The drugs used to treat tuberculosis, mainly rifampicin and isoniazid, interact with oral antidiabetic drugs and may lead to suboptimal glycaemic control. Therefore, diabetes and tuberculosis interact with each other at multiple levels, each exacerbating the other. Furthermore, several studies have reported a highly increased risk of multi-drug resistant tuberculosis among diabetic persons, with an odds ratio of about 2. Therefore, treatment failures and death are more frequent in these patients.

Sexual health, contraception

Speaker

Pemra C. Ünalan (see previously, p. 17)

Summary

It is known that patients' sex influences biological, psychological, social, and financial aspects of diabetes care. Furthermore, it is obvious that diabetes influences the health status and quality of life of diabetic patients. Although

sexual health has elements relating to biological and psychological issues, health outcomes related to sexuality are influenced by diabetes and decreased arousal is a common complaint among diabetic patients regardless of the patient's sex. Causes of sexual problems in diabetic patients are neuropathy and reduced blood flow to genital and urinary tissues, hormonal changes, side effects of medication, extreme fatigue, emotional health issues including stress, depression, anxiety and relationship issues, alcohol abuse, smoking, genitourinary infections, other diseases and conditions relating to pregnancy or menopause.

In this section we will share the knowledge about the most common sexuality issues in patients with type 2 diabetes. We will underline the fact that the people who keep their diabetes under control can lower their risk of the early onset of these problems. By the help of the current evidence in treatment and consultancy we will highlight the consultancy in contraception and points to remember through clinical practice.

LDL targets

Speaker

Arno W. Hoes (see previously, p. 22)

Summary

LDL targets in patients treated with statins continue to be debated and this is also the case with diabetic patients. Recommendations in the guidelines differ considerably, from no target (and thus: no monitoring of LDL levels) in some, to very low targets in others. During the lecture the current evidence on LDL target levels in diabetes will be reviewed critically. A clear distinction will be made between "real" evidence and "circumstantial" evidence. The point will be made that current recommendations are far from evidence based.

Polypharmacy

Speaker

Prof. Johan Wens is a general practitioner in Ekeren (northern Antwerp) where he works part time in a small GPs surgery, together with his wife who also is a GP.

He is a member of staff at the University of Antwerp, Faculty of Medicine and Health Sciences, Department of Primary and Interdisciplinary Care, Center for General Practice/Family Medicine. His main research interests are in the field of chronic care delivery and interdisciplinary health care. He is also particularly interested in topics such as multi-morbidity, polypharmacy, and complex care delivery. Improving quality of care for people living with type 2 diabetes has been his first topic for research. Later this was extended to chronicity and is now more focussed on the implementation of palliative care delivery.

He has published more than 100 scientific papers nationally and internationally, and has contributed to several reports and books. He was named Belgium's medical personality of the year in 2006.

Johan is honorary chairman of the local GPs' Circle of Northern Antwerp. He represents the University Department in several regional and national task forces, working committees and advisory boards including the National Institute for Sickness and Invalidity Insurance (RIZIV), the National Council for Quality Promotion in Health Care (NRKP), Domus Medica (Flemish GPs' Organization), High Council for GPs and Specialists. He is currently chairman of Palliative Help Antwerp, the Diabetes Interactive Education Program (DIEP; www.dieponline.be) and of Primary Care Diabetes Europe (PCDE; www.pcdeurope.org).

Summary

Our population is aging, and older people often suffer from multiple chronic conditions. Diabetes is frequently one of them. People living with (type 2) diabetes and other chronic conditions are advised to take several medicines that could trigger adherence issues but can also have potentially harmful interactions. In this short presentation an overview of risks and potential solutions will be given, seen from a quality of care perspective.

SATURDAY, 30 APRIL

■ SESSION 7. RISING STAR LECTURE. COGNITIVE DYSFUNCTION IN TYPE 2 DIABETES: AN IMPORTANT PROBLEM

Time 09.00 - 09.45
Room MR 09

Speaker

In 2015 **Paula Koekkoek** completed her thesis on 'Cognitive dysfunction in type 2 diabetes-detection and treatment in primary care' and obtained her PhD from the Julius Center for Health Sciences and Primary Care, University Medical Center Utrecht, The Netherlands. In 2013 she obtained an MSc in clinical epidemiology from Utrecht University. She is currently working in a medical practice to complete her last year of general practice training.

Dr Koekkoek´s research focuses on how treatment of a vulnerable group of elderly patients with type 2 diabetes and cognitive dysfunction can be optimized.

Summary

Cognitive dysfunction is a less well-known complication of type 2 diabetes mellitus. Patients with type 2 diabetes already have cognitive impairment in an early stage of their disease. Cognitive dysfunction can lead to several problems in diabetes treatment. Diabetes guidelines therefore advise physicians to address the patient's cognitive functioning. The presentation will discuss possibilities for a general practitioner to diagnose patients with type 2 diabetes and mild cognitive impairment and to adjust the diabetes treatment accordingly.

■ SESSION 8. ORAL PRESENTATION OF 5 BEST ABSTRACTS

Time 09.45 - 10.45
Room MR 09

The five best abstracts selected from the abstracts accepted by the Scientific Committee of the Conference will be presented orally in this session:

- A systematic review of interventions targeting primary care or community-based professionals on cardio-metabolic risk factor control in people with diabetes.
- Delivering diabetes education through nurse-led telecoaching. Cost-effectiveness analysis.
- Development and validation of prescribing quality indicators for type 2 diabetes in primary care.
- Effectiveness and feasibility of a program for the primary prevention of type 2 diabetes in routine context of primary heath care.
- Self-management of type 2 diabetes mellitus considering differences between gender. A qualitative study.

■ SESSION 9. DIABETES IN THE OLDER PERSON WITH CO-MORBIDITIES

Time 11.15 - 11.45
Room MR 09

Speaker

Eugene Hughes qualified from Guy's Hospital in 1979. He works as a general practitioner in Ryde on the Isle of Wight.

In 1996, he was a founder member of Primary Care Diabetes UK. He served on the committee for six years, during which time he was involved in conference organization. More recently, he was a member of the steering group which established the Primary Care Diabetes Society in the UK.

In 2002 he joined the executive of Primary Care Diabetes Europe, and has organized several international conferences. He is currently past chairman of this organization. In 2007, the journal *Primary Care Diabetes* was launched, and has recently gained *Medline* listing

He was the editor of the journal *Diabetes and Primary Care* from 1998 to 2007. He is also on the editorial board of *Diabetes Digest* and the *European Endocrine Review*.

He has written many articles and editorials on diabetes, particularly relating to service delivery and early management of type 2 diabetes. He is the medical editor of *A Simple Guide to Diabetes*, and author of "Evidence in Diabetes and Cardiovascular disease".

Summary

We are familiar with the protocols for the management of blood glucose, blood lipids and blood pressure in people with diabetes – years of evidence informs our decision making. But does that evidence equally apply to older people with diabetes? And what about people with co-morbidities or reduced life expectancy? Many of these groups are excluded from the trials which contribute to our evidence base.

This presentation looks at the evidence for the management of risk factors in older people with diabetes, and provides pragmatic tools for clinical practice. It uses material from the recent IDF publication on the subject and introduces key concepts in the care of this ever-growing sector of the diabetes community. It also examines how we should adapt our prescribing patterns to reflect the changing needs of different patient groups.'

Following this talk, you should be able to;

- Interpret the guidelines for management of blood pressure, blood lipids and blood glucose as far as they are applied to the older person with diabetes.
- Consider the appropriateness of therapy in people with diabetes at various stages of their illness, including end of life care.
- Consider how co-morbidities influence the future management of people with diabetes.

■ SESSION 10. DRUGS

Time 11.45 - 12.45
Room MR 09

Lectures

- **Sodium-glucose cotransporter 2 (SGLT2) inhibitors**
  Kamlesh Khunti
- **GLP-1 receptor agonists**
  Manel Mata
- **New insulins**
  Guy Rutten

Sodium-glucose cotransporter 2 (SGLT2) inhibitors

Speaker

Kamlesh Khunti (see previously, p. 18)

Summary

The prevalence of type 2 diabetes has reached epidemic proportions and despite good evidence of microvascular and macrovascular benefits of early glucose control, many patients still fail to reach ideal glycaemic targets. This is despite a number of antihyperglycaemic agents that have been developed and launched over the last 15 years. Sodium-glucose cotransporter 2 (SGLT2) inhibitors are a novel medication for the treatment of people with type 2 diabetes. Their mode of action is to inhibit the reabsorption of glucose in the proximal renal tubules providing an insulin-independent mechanism to lower blood glucose. Their use is not only associated with improved glycaemic control but also weight loss with a low risk of hypoglycaemia. They lower both fasting and postprandial glucose either as monotherapy or with other antidiabetic therapies. One recent study has also shown beneficial effects on cardiovascular outcomes in people at high risk of cardiovascular disease. SGLT2 inhibitors add to the armamentarium of therapies available for an individualised approach to the management of people with diabetes in primary care.

Learning objectives:

– To discuss individualised therapeutic management of people with T2DM.

– Overview of SGLT inhibitors' mode of action.

– Overview of phase 3 and cardiovascular outcome trials of SLGT2 inhibitors.

GLP-1 receptor agonists

Speaker

Dr Manel Mata is a family and community medicine specialist and has been working as a general practitioner at La Mina Primary Health Care Centre, Barcelona (Spain) since 1984. He has been tutoring residents in the Family and Community Teaching Unit of Barcelona since 1987.

Dr Mata was one of the founders of the Primary Care Diabetes Study Group (GEDAPS) in 1992 of which he was chairman from 2009 to 2013. The group promoted several quality-improvement evaluations of diabetes care in primary care from 1993 to 2007. He is also a part-time researcher at the Barcelona Ciutat Research Support Unit of the Jordi Gol Primary Healthcare Research Institute (IDIAP-Jordi Gol, Barcelona, Spain) where he is member of the Primary Care Research Group on Diabetes (DAP.cat). This group has access to the Information System for the Improvement of Research in Primary Care (SIDIAP), a population database including the medical records of 5.5 million patients cared for by the Institut Català de la Salut (Catalan Health Institute).

Dr Mata has participated in several consensus documents on the management and treatment of type 2 diabetes mellitus (T2DM) in Spain. He is one of the authors of the Spanish "2014 Network of Groups for the Study of Diabetes (RedGDPS) algorithm for the Management of T2DM in Primary Care", the "2012 Institut Català de la Salut T2DM Guidelines" and the "2013 Catalonian Public Health Service Harmonization of T2DM Guidelines". He was also the primary care representative on several advisory boards on diabetes for the Spanish Ministry of Health from 1993 to 1996 and for the Catalonian Autonomous Government from 2000 to 2006. He is currently vice-chairman of the Catalan Diabetes Association and member of the board of the Spanish Diabetes Society.

He has written several articles and editorials on diabetes in national and international journals and has been a reviewer of manuscripts for a number of scientific journals. He lectures widely on type 2 diabetes-related topics, mainly regarding its pharmacological treatment.

Summary

Glucagon-like peptide-1 (GLP-1) is a gastrointestinal hormone secreted in response to the ingestion of nutrients, and has important effects on several of the pathophysiological features of type 2 diabetes (T2D). The effects include potentiation of insulin secretion, suppression of glucagon secretion, slowing of gastric emptying and suppression of appetite. Because of the short half-life of GLP-1 receptor agonists, (GLP-1ra) agonists, resistant to degradation by DPP-4, have been developed.

At the moment six different compounds are available for the treatment of T2D and many more are in clinical development. These compounds, although all based on the effects of native GLP-1, differ with regards to structure, pharmacokinetics and size, which ultimately leads to different clinical effects. Exenatide, lixisenatide and liraglutide need to be injected daily while albiglutide, dulaglutide and exenatide extended release only need to be injected weekly.

Randomized clinical trials have reported that GLP-1ra therapy reduce HbA1c by approximately 1.0%, with weight loss of 2.3-5.5 kg and reductions in systolic blood pressure of 3-5 mm Hg. Comparisons with basal insulin have shown weight loss rather than gain with GLP-1ra over 6 or 12 months and either no difference in HbA1c reduction or a greater decrease with fewer hypoglycaemic events.

The most frequent side effects of GLP-1ra are dose-dependent, mild to moderate nausea, vomiting and diarrhoea. These side effects decline over time. Continuous-acting compounds seem to be associated with a higher degree of gastrointestinal tolerability compared to the short-acting compounds; most likely due to reduced fluctuations of plasma peptide concentrations in plasma. Besides the gastrointestinal side effects, there is a debate about an association with pancreatic and thyroid cancer and acute pancreatitis. Injection site reactions occurred more often with once-weekly GLP-1ra compared with daily GLP-1ra and insulin. Furthermore, lixisenatide has been the first GLP-1ra to demonstrate neutrality in terms of cardiovascular safety in the ELIXA trial.

GLP-1ra can be used alone or in combination with oral antidiabetic drugs such as metformin, glitazones, sulfonylureas or insulin, but algorithms placed them in the second and third steps of treatment. Thus, they have been approved for obese or overweight T2DM patients who have not achieved adequate glycaemic control after treatment with other antidiabetic drugs.

This presentation gives an overview of the clinical data on GLP-1ra, especially when they have been compared in head-to-head studies, in comparison with basal insulin or with rapid-acting insulins in patients already on basal insulin. Highlighting these similarities and differences could be beneficial for primary care physicians in choosing the best treatment strategy for their patient.

Learning outcomes:

– Mechanisms of action and clinical differences among the compounds.

– Do GLP-1ra clinical trials and real-world observational studies have the same results?

– GLP-1ra and safety: a matter of concern?

Learning objectives:

– To understand the clinical differences in glycaemic control and weight among the compounds.

– To explore their place in the algorithm, especially as an alternative to insulinization.

– To explore the comparisons with rapid-acting insulin in patients already on basal insulin.

New insulins

Speaker

Guy Rutten is professor of diabetology in primary care and the director of the training-course for executives in diabetology in primary care at the University Medical Center Utrecht, Julius Center Division, Department of General Practice. His research activities focus on screening for diabetes, diabetes and cardiovascular complications and diabetes primary care. He is the (co-)author of more than 250 original articles in (inter) national peer-reviewed journals and has supervised or is supervising 13 RCTs on type 2 diabetes in primary care. He is one of the principal investigators of the ADDITION study. He has also written several books on type 2 diabetes and general practice topics. He has chaired the Dutch General Practice Advisory Group since 1996 and was founder and chair of the EASD Primary Care Study Group from 2006 to 2011. From 2004-2010 he was a member of the Scientific Advisory Board of the Dutch Diabetes Research Foundation. He was the first editor-in-chief of *Primary Care Diabetes*. Guy Rutten worked as a general practitioner in a group practice from 1982 to 2014, for at least two days a week.

Summary

About 40% of people with type 2 diabetes do need insulin therapy to achieve optimal glycemic control. However, both physicians and patients are reluctant to start insulin; and insulin therapy is attended by increased diabetes related distress. People fear hypoglycaemia, weight gain and discomfort. A once-daily basal insulin regimen added to oral medication is an ideal starting point. All the next steps, to two or even more injections per day should be taken very carefully and discussed thoroughly with the patient, who has to comply with such a regimen for many years. New long-acting basal insulins should decrease the number of hypoglycaemic events, provide greater flexibility in dosing time from day to day and reduce weight gain. In this lecture the new insulins on the market will be discussed.

Learning objectives:

– To learn about the evidence of insulin therapy in general.

– To learn about the effectiveness of newly designed insulins.

– To learn about the patient-reported outcomes in insulin therapy.

Abstracts

ORAL PRESENTATIONS

Session 8 • Saturday, 30 April
09.45-10.45 / Plenary Meeting Room (MR 09)

A systematic review of interventions targeting primary care or community-based professionals on cardio-metabolic risk factor control in people with diabetes

Seidu S[1], Walker NS[1], Bodicoat DH[1], Davies MJ[1], Khunti K[1]
[1]University of Leicester, Leicester (England)

Aim(s) or purpose: To review the interventions targeting primary care or community-based professionals on glycaemic and cardiovascular risk factor control in people with diabetes.

Design and method: A systematic review of randomised controlled trials evaluating the effectiveness of interventions targeting primary care or community-based professionals on diabetes and cardiovascular risk factor control. We conducted searches in the MEDLINE database from inception up to 27th September 2015. We also retrieved articles related to diabetes from the Cochrane EPOC database and EMBASE and scanned bibliographies for key articles.

Results: There was heterogeneity in terms of interventions and participants amongst the 30 studies (39,439 patients) that met the inclusion criteria. Nine of the studies focused on general or family practitioners, five on pharmacists, three on nurses and one each on dieticians and community workers. Twelve studies targeted multi-disciplinary teams.
Educational interventions did not seem to have a positive impact on HbA1c, systolic blood pressure or lipid profiles. The use of telemedicine, clinician reminders and feedback showed mixed results but there was a level of consistency in improvement in HbA1c when multifaceted interventions on multidisciplinary teams were implemented. Targeting general or family physicians was largely ineffective in improving the cardiovascular risk factors considered, except when using a computer application on insulin handling of type 2 diabetes or customised simulated cases with feedbacks. Similarly, interventions targeting nurses did not improve outcomes compared to standard care.

Conclusions: Multifaceted professional interventions were more effective than single interventions targeting single primary or community care professionals in improving glycaemic control.

Delivering diabetes education through nurse-led telecoaching. Cost-effectiveness analysis

Odnoletkova I[1], Ramaekers D[1], Nobels F[2], Geert G[3], Aertgeerts B[3], Annemans L[4]
[1]Leuven Institute for Healthcare Policy, KU Leuven, Leuven (Belgium); [2]Department of Endocrinology, OLV Hospital Aalst, Aalst (Belgium); [3]Academic Center for General Practice, KU Leuven, Leuven (Belgium); [4]Department of Public Health, Ghent University, Ghent (Belgium)

Aim(s) or purpose: To analyse the lifelong cost-effectiveness of a nurse-led telecoaching programme compared to usual care in people with type 2 diabetes from the perspective of the Belgian healthcare system.

Design and method: The UKPDS Outcomes Model was populated with patient-level data from an 18-months randomized clinical trial in Belgian primary care that tested the effectiveness of nurse-led target-driven telecoaching in patients with type 2 diabetes and involved 574 participants. Trial data were extrapolated to 40 years; Quality Adjusted Life Years (QALYs), treatment costs and Incremental Cost-Effectiveness Ratio (ICER) were calculated for the entire cohort and the subgroup with poor glycemic control at baseline ("elevated HbA1c subgroup"). Uncertainty associated with the results was explored by means of a Monte Carlo simulation and a subsequent one-way sensitivity analysis.

Results: The cumulative mean QALY (95% CI) gain was 0.21 (0.13; 0.28) overall and 0.56 (0.43; 0.68) in elevated HbA1c subgroup, the respective incremental costs were € 1,147 (188; 2,107) and € 2,565 (654; 4,474) and the ICERs € 5,569 (€ 677; € 15,679) and € 4,615 (1,207; 9,969) per QALY, with 2.0% and 0.3% respective probabilities for telecoaching to be cost-saving and 98.2% and 100% probabilities that the value of ICER lies below the threshold of € 10,000 per QALY. In the scenario analysis, repeating the intervention for lifetime had the greatest impact on the cost-effectiveness and resulted in the mean ICERs of € 13,034 in the entire cohort.

Conclusions: Considering reimbursement thresholds common within Western European economies, nurse-led target driven telecoaching of people with type 2 diabetes has a high potential of being considered cost-effective within the Belgian healthcare system.

Development and validation of prescribing quality indicators for type 2 diabetes in primary care

Smits K[1], Sidorenkov G[1], Navis G[1], Bilo H[2], Denig P[1]
[1]University Medical Center Groningen, Groningen (Netherlands); [2]Diabetes Centre, Isala Clinics, Zwolle (Netherlands)

Aim(s) or purpose: The available quality indicator sets for type 2 diabetes (T2D) care lack prescribing quality indicators (PQI) that cover the various aspects of medication treatment. The aims of this study are (1) to develop a set of valid PQIs for T2D care, and (2) to test the feasibility of this set of PQIs using routinely collected data in primary care.

Design and method: The PQIs were developed using the RAND/UCLA Appropriateness Method. First, the initial list of indicators was defined based on the literature, followed by the three-round structured process in which a panel of experts assessed the list of PQIs on correct reflection of the guidelines, definitions, health gain for the patient and necessity. Next, the feasibility of the selected indicators was assessed using the routinely collected data of T2D patients from two large primary care databases (n= 58820 and n= 26321).

Results: The initial list of 32 indicators was assessed by the expert panel. In the first round 16 indicators scored insufficiently. During the consensus meeting 12 indicators were changed, 4 were added and 14 were discarded, resulting in a new list of 22 indicators. In the final round, 20 of these indicators scored sufficiently. The indicators focused on medication need and treatment choice for management of HbA1c, LDL-cholesterol, blood pressure and albuminuria, and on medication safety. These indicators were tested for feasibility. In the two primary care databases, all the indicators could be calculated in a reliable way, meaning that the required parameters were available in a sufficient number of patients, supporting the feasibility of the indicator set.

Conclusions: We developed a comprehensive, validated set of 20 PQIs for measuring the quality of prescribing in primary care patients with T2D, which can be calculated using the routinely collected data.

Effectiveness and feasibility of a program for the primary prevention of type 2 diabetes in the routine context of primary health care

Sánchez A[1], Silvestre C[2], Campo N[1], Valderrama N[1], Martínez C[3], Grandes G[1]
[1]Osakidetza (Basque Health Service)-Bizkaia Primary Care Research Unit, Bilbao (Spain); [2]Osasunbidea (Navarre Health Service), Pamplona (Spain); [3]Osakidetza-Basurto Hospital, Bilbao (Spain)

Aim(s) or purpose: To assess the effectiveness and feasibility of a type 2 diabetes (T2DM) prevention program in high risk population in the routine context of primary care (PHC).

Design and method: Phase IV cluster clinical trial conducted in 14 health centers in Osakidetza randomized to the intervention group (IG) or control group (CG). Non-diabetic patients aged 45 to 70 years old attending the collaborating centers detected at high risk of T2DM (FINDRISC ≥14 points) were eligible for study inclusion. IG centers implemented the DEPLAN program, an educational healthy lifestyles promotion intervention, while the CG patients received standard care for the prevention of T2DM. The effectiveness of the intervention will be determined by comparing the changes in the cumulative incidence of T2DM at 24 months.

Results: From a total of 634 and 454 of the patients included in the IG and CG, 549 (86.5%) and 411 (90.5%) completed the 24 months follow-up. Of these, 77 and 38 patients developed T2DM in the CG and IG, respectively. The cumulative incidence rate considering that patients lost to follow-up did not develop T2DM, was 12.6% (77/634) and 8.4% (38/454) in the CG and IG. The absolute risk difference was 3.8% (95% CI: 0.18% to 7.4%) in favour of the IG, with a relative risk reduction of 34% (Relative Risk Reduction= 0.66; 95% CI: 0.44 to 0.99).

Conclusions: The results showed that a T2DM primary prevention program implemented in routine PHC conditions was effective in reducing T2DM incidence in high-risk patients. However, the limited feasibility has prevented adequate sustainable integration into clinical practice of professionals and centers.

Self-management of type 2 diabetes mellitus considering differences between gender. A qualitative study

Berenguera A[1], Millaruelo L[2], Buil P[3], Gómez C[4], Mora G[5], Cos X[6]
[1]Jordi Gol Primary Care Research Unit, Barcelona (Spain); [2]Network of Diabetes Study Groups in Primary Health Care Barcelona (Spain); [3]Azpilagaña Health Centre, Pamplona (Spain); [4]Vélez Norte Clinical Management Unit, Málaga (Spain); [5]Los Alpes Health Centre, Madrid (Spain); [6]Sant Martí Psycho-Pedagogical Advisory Teams, Barcelona (Spain)

Aim(s) or purpose: The aim of this study was to explore the barriers, knowledge, attitudes and behaviours in self-management of uncontrolled type 2 diabetes mellitus (T2DM) considering gender differences.
Design and method: *Design:* We carried out a qualitative study using a phenomenological approach. *Study setting:* The study was conducted in 12 Primary Health Care Centres in four regions of Spain. *Sample design and sample:* Sampling was intentional, rational and theoretical. We consider the different variables: gender, age, years with diabetes, type of treatment, family support and educational level. A total of 112 people aged over 40, diagnosed with T2DM (54 women and 58 men). The volunteers agreed to participate and signed the informed consent. *Data collection methods:* A total of 12 focus groups with patients were conducted. *Data analysis:* An interpretative content analysis was performed through systematic transcriptions and field notes.

Results: Different categories emerged which provide knowledge and insight about the causes of poor self-management of T2DM such as: impact of diagnosis, disease attribution, beliefs about its influence on the individual, and self-care and caregiver. The last category is the one that showed the most inequalities between genders. Women were shown to be the carers of their families and children, and they overlooked their own illnesses to prioritize their multi-caregiver role. Men generally attributed the lack of self-care to mood, motivation or fatigue and issues of finding a work-life balance. The patient-professional relationship is another category where participants expressed the importance of self-management. They said that professionals could improve motivation techniques and that the harsh and alarmist tone does not help good self-management T2DM.

Conclusions: An approach considering the differences between genders in primary care is important in order to understand the causes of poor control of T2DM self-management.

POSTERS

Poster Walk 1 • Friday, 29 April
10.45-11.30 / Meeting Room (MR 05+06)

Poster Walk 2 • Saturday, 30 April
10.45-11.15 / Meeting Room (MR 05+06)

Age-related differences in patients' preferences for profiles of glucagon-like peptide-1 receptor agonist diabetes treatments in the United Kingdom: a discrete choice experiment

Boye K[1], Poon J[2], Davies E[3], Paczkowski R[1], Curtis S[1], Gelhorn H[2]
[1]Eli Lilly and Company, Indiana (USA); [2]Outcomes Research, Evidera, Maryland (USA); [3]Outcomes Research, Evidera, London (England)

Aim(s) or purpose: To evaluate age-related differences in preferences for the treatment features of glucagon-like peptide-1 (GLP-1) receptor agonists among patients with type 2 diabetes (T2D) in the United Kingdom (UK).

Design and method: A discrete choice experiment (DCE) was conducted among adult patients with T2D, who had not previously administered injectable medications to self or others. The DCE was conducted through in-person interviews and examined six attributes: dosing frequency, HbA1c change, weight change, type of delivery system, frequency of nausea, and frequency of hypoglycaemia. Part-worth utilities were estimated using a random effects logit model and used to calculate relative importance (RI) values for each attribute. Patients were stratified by age (<55 years; 55-65 years; >65 years) and chi-square tests were used to test for differences in the RI of each attribute across age groups.

Results: The study was completed by 243 participants (<55 years: n = 68; 55-65 years: n = 95; >65 years: n = 80). In all groups, dosing frequency, type of delivery system, and frequency of nausea were the three most important attributes in rank-order. Between groups, significant differences in RI of type of delivery system (<55 years: RI = 28.1%; 55-65 years: RI = 39.6%; >65 years: RI = 37.9%; P = 0.0477) and frequency of hypoglycaemia (<55 years: RI = 0.04%; 55-65 years: RI = 1.4%; >65 years: RI = 7.6%; P = 0.0384) were observed.

Conclusions: This study demonstrated that regardless of age, the rank-order of RI for treatment characteristics of GLP-1 receptor agonist medications are generally similar with dosing frequency consistently ranked highest. Where age-group differences were observed, frequency of hypoglycaemia and type of delivery system were of greater importance to older patients.

An association between poor glycemic control among diabetic patients and undiagnosed adult ADHD

Merzon E[1], Kitai E[1], Merzon T[1], Golan-Cohen A[1], Vinker S[1]
[1]Leumit Health Services, Tel Aviv (Israel)

Aim(s) or purpose: It has been shown that psychiatric disorders like depression and anxiety are associated with poor glycemic control among patients with diabetes mellitus (DM). Attention Deficit Hyperactivity Disorder (ADHD), one of the most common undiagnosed chronic psychiatric disorders in the general adult population, is associated with poor health statutes. Previous studies described a higher prevalence of obesity and type 2 DM (T2DM) among young adults with ADHD. The aim of our study was to evaluate whether poor-controlled adult diabetics have a higher proportion of undiagnosed ADHD.

Design and method: We conducted a population-based case-control study in the Central Region of Israel. Thirteen cases with poor-controlled DM (HgbA1C > 9%) were compared to the 13 controls with good glycemic control (HgbA1C < 7%). ADHD diagnosis was based on DSM-V criteria and assessed by the Wender Utah Rating Scale (WURS). Odds ratios of having ADHD were calculated and adjusted for potential confounders and effect modifiers using multivariable analysis and logistic regression models.

Results: We found that cases, as compared to controls, had higher BMI (37.5 vs. 26.8, $P < 0.01$), total cholesterol (208.1 vs. 152.8, $P < 0.01$), low density cholesterol (120.8 vs. 81.3, $P < 0.01$), triglyceride (243.1 vs.115.2, $P < 0.01$) levels and systolic blood pressure (148.7 vs. 128.2, $P < 0.01$). Fewer cases than controls completed 12 years' education (19.95% vs. 80.34%, $P < 0.01$). Cases had a lower income than controls (12384 NIS vs. 15607 NIS, $P = 0.08$). 69.3% of cases were diagnosed with ADHD vs. 13.3% of controls ($P < 0.01$). Multivariable analysis calculated the odds ratio of having ADHD among poor-controlled diabetics as compared to good-controlled diabetics as - 8.02 (CI 1.64-50.8).

Conclusions: In our study we found that, among diabetics with poor glycemic control, the proportion of undiagnosed ADHD was eight times higher compared to diabetic patients with good glycemic control.

An innovative, expandable, and customised single-hub database for optimised study management in a long-term VERIFY trial

Proot P[1], *Paldánius P*[1]
[1]Novartis Pharma AG, Basel (Switzerland)

Aim(s) or purpose: Patient retention is a challenge in long-term trials, the reasons being treatment-related adverse events, consent withdrawal, and patients lost to follow-up. Continuous medical monitoring and real-time access to clinical data are necessary to combat the inertia in patient retention in long-term trials. We explored the use of a live database in testing the benefits of real-time access and reviewing data from the ongoing VERIFY trial, a five-year study evaluating the effects of early combination therapy and long-term glycaemic durability in newly diagnosed T2DM patients.

Design and method: We developed an innovative, relational database, using FileMaker v13.0 software, to compile real-time data retrieved from electronic case report forms, Interactive Response Technology, a safety database, a study management system, and a central laboratory, into a single hub linked to an email client for mobile or desktop use (Outlook, Mail).

Results: The database enabled easy retrieval and contemporary data review from all sources. An automated e-mail notification in response to safety signals, one-click access to patient profile, a selection of statistical analyses tables, and the generation of user-friendly reports were among the vital features. These helped in the increased productivity of clinical research associates and other internal clients. Because this tool enabled investigational drug adherence and patient visit compliance, we observed a patient dropout rate of 6.3% at 1-year.

Conclusions: Patient dropout rate at 1-year in the VERIFY trial is 6.3% which is less than the estimated annual rate of 11% in newly-diagnosed T2DM patients; this might be partially due to the effective clinical study management with the help of the database. Owing to the benefits of easy access to patient data as well as prompt e-mail alerts specific to safety signals and improved patient retention, this database might help address 'study inertia' through optimised data management in clinical trials.

Calculator for myocardial infarction risk in Uzbek patients with type 2 diabetes mellitus

Takhirova F[1], *Sabirov Z*[1]
[1]Center for the Scientific and Clinical study of Endocrinology, Tashkent (Uzbekistán)

Aim(s) or purpose: Integral assessment of MI risk in patients with type 2 diabetes mellitus with genetic markers taken into account as well as the creation of a computer program for its prediction in this category of patients.

Design and method: To perform integral assessment and predict MI risk we used a method for the standardization of intensive parameters by E.N. Shigan, based on Bayesian probability.

Results: With regard to the relative risk factors causing MI in Uzbek men with type 2 diabetes mellitus, myocardial infarction in their family medical history came first (9.20) followed by left ventricular hypertrophy (7.87), age (5.80), ACE gene DD genotype (4.22), arterial hypertension (4.11), diabetes duration (2.86), diabetic nephropathy (2.77), alcohol abuse (2.34), HbA1c≤7% (2.00), obesity (BMI> 25 kg/m^2) (1.88), stroke in their family medical history (1.82), dyslipidaemia (1.54), TCF7L2 gene TT genotype (1.51), smoking (1.46) and hypercoagulation (1.26). This type of rating is essential in a physician's practice to categorize MI risk contingent among patients with type 2 diabetes mellitus. The possible ranges of risk for all factors above were determined after calculation of MI risk relative risk parameters.

Conclusions: Based on the calculations above, a software application (computer program) called Calculator for myocardial infarction risk in Uzbek patients with type 2 diabetes mellitus was developed. By clicking on the corresponding icon –"yes" (presence) or "no" (absence)– a physician introduces appropriate data for each MI risk factor. Once the input of data for all MI risk factors has been completed, scores for MI risk degree (low, moderate or high) can be obtained by clicking the icon "Calculate". By clicking on the icon "Recommendations" a physician can get information about the recommendations for MI prevention in Uzbek patients with type 2 diabetes mellitus.

Carotid atherosclerosis in patients with type 2 diabetes

Rybytska M[1]*, Khimion L*[1]
[1]PL Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: To determine the relationship of various risk factors of cardiovascular disease (CVD) with the severity of atherosclerosis by ultrasound examination of carotid arteries in patients with type 2 diabetes.

Design and method: We conducted a correlation analysis of dynamics of average levels for five years of systolic blood pressure (SBP) and blood biochemical parameters (total cholesterol [TC]), C-reactive protein (CRP), uric acid (UA) with surrogate markers of atherosclerosis (intima-media thickness [IMT] > 0.9 mm, presence of atherosclerotic plaques) in 145 patients with type 2 diabetes (mean age 53.0 (49.0-60.5 years). Statistical analysis was performed using IBM SPSS Statistics 20.

Results: A direct medium-strength correlation between IMT and average levels of SBP (r=0.42), TC (r=0.40), CRP (r=0.41) and UA (r=0.40) was detected (p<0.01). The same direct correlation was determined between the percentage of stenosis and average levels of TC (r=0.37), CRP (r=0.38) (p<0.05). Frequency of detection IMT >0.9 mm was increased twice (RR=2.2 [CI: 1.4-3.5]) with average levels of SBP >140 mm Hg (χ2(1)=14.7; φ=319), CRP >3.0 mg/L (χ2(1)=15.6; φ=328; RR=2.1 [CI: 1.3-3.2]) and UA >300 mg/L (χ2(1)=20.1; φ=390; RR = 2.1 (CI: 1.5-3.0), in 1.5 times (RR=1.6 [CI: 1.0-2.9]) at an average level of TC >4.5 mmol/L (χ2(1)=4.3; φ=172) (p<0.01). The detection rate of atherosclerotic plaques in carotid arteries increased almost twofold with average levels SBP >140 mm Hg (χ2(1)=7.7; φ=230; RR=1.7 [CI: 1.1-2.5]), TC >4.5 mmol/L (χ2(1)=9.3; φ=253; RR=2.5 [CI: 1.2-5.5]), CRP >3.0 mg/L (χ2(1)=20.9; φ=454; RR=3.6 (CI: 1.9-6.8), UA >300 mg/L (χ2(1)=19.9; φ=371; RR=2.1 [CI:1.5-3.1]) (p<0.01).

Conclusions: The revealed relationship confirms the significant role of CRP and UA in the formation of atherosclerotic plaques in carotid arteries, the development of stenotic atherosclerosis and its progression in patients with type 2 diabetes, which requires further study in order to improve the prevention of stenotic complications of CVD.

Clinical inertia affects younger and older adults with type 2 diabetes mellitus equally, with or without CKD

Strain WD[1]*, Paldánius P*[2]
[1]University of Exeter Medical School, Exeter (UK); [2]Novartis Pharma AG, Basel (Switzerland)

Aim(s) or purpose: Clinical inertia (CI) is a multifactorial phenomenon, with contributory factors from people with diabetes (PwD), their physicians, and the system in which they operate. The Time2DoMore programme suggested that physicians believe older PwD and those with chronic kidney disease (CKD) are more susceptible to CI than younger patients with few or no comorbidities. CI affects fewer clinical trials, presumably due to the placebo effect. The difference between routine care and this placebo effect in trials represents a correction of non-pharmacological aspects of CI. We explored the pre-existing CI by targeting placebo-treated patients and using CKD as a proxy of diabetes complications; comparing the glycaemic outcomes after a placebo intervention in older patients with or without CKD, to those in a younger population, with or without CKD.

Design and method: We stratified placebo-treated subjects from the vildagliptin clinical trial programme, in a factorial design by age (<70 or >70 years) and with or without CKD (eGFR <60 ml/min/1.73 m^2). Change in HbA1c was assessed at 24 weeks.

Results: Placebo-treated patients (n=3081) were included from 25 studies. Mean baseline HbA1c was comparable across the groups and independent of age or CKD status. The overall mean placebo effect was similar between groups.

	Younger, non-CKD n=2176	Younger with CKD n=304	Older, non-CKD n=338	Older with CKD n=263
Age (years)	54.4±9.2	60.6±6.8	73.5±3.1	74.7±3.9
T2DM duration	6.5±6.1	12.2±9.3	10.2±8.2	13.7±10.1
Baseline HbA1c (%)	8.1±1.2	7.8±1.1	7.9±1.1	7.8±0.9
After adjustment for baseline HbA1c				
Placebo effect (%)	–0.2±0.0	–0.3±0.1	–0.3±0.1	–0.3±0.1
Values are expressed as mean±SD or SEM (for adjusted HbA1c change)				

CKD: chronic kidney disease; T2DM: type 2 diabetes mellitus.

Conclusions: We demonstrated a consistent placebo effect across age groups in presence or absence of CKD, suggesting that the non-pharmacological component of CI in PwD may be independent of age and comorbidities.

Comparable effectiveness of real-world dual therapies across different levels of renal function in patients with T2DM

Thomas M[1], *Paldánius P*[2]
[1]Baker IDI Heart and Diabetes Institute, Melbourne (Australia); [2]Novartis Pharma AG, Basel (Switzerland)

Aim(s) or purpose: DPP-4 inhibitors have advantages in treating T2DM patients with renal impairment (RI). They include reduced need for complex dose titration, lack of increased risk of hypoglycaemia, and comparable efficacy across all levels of renal function, ages, and T2DM duration that may not be seen with other drug classes, like SUs. Here, we compared the effectiveness of vildagliptin vs. SU as add-on second-line dual therapy in T2DM patients on failing monotherapy and different degrees of RI enrolled in an observational study, EDGE, worldwide.

Design and method: We used descriptive statistics and adjusted multivariate analysis to assess the effectiveness by absolute change in HbA1c and the proportion of patients responding to treatment (HbA1c <7%) without tolerability issues: weight gain ≥ 3% or hypoglycaemia for 12 months. Estimated glomerular filtration rate (eGFR) values were available for a sub-set of patients who were administered vildagliptin or SU based on clinical judgement for treatment intensification.

Results: 20822 patients had MDRD-eGFR values; 2532 (1649 in vildagliptin vs. 883 in SU) had eGFR value <60 ml/min denoting the presence of RI. Participants with RI were older (65 vs. 57 years), and had longer T2DM duration (7 vs. 5 years) than those with eGFR >60 ml/min. Patients treated with vildagliptin reached glycaemic targets more often without weight gain or hypoglycaemia vs. patients treated with SUs (odds ratio [OR]: 1.766, 95% CI: 1.646, 1.896, p<0.001). Response rates (HbA1c <7% without tolerability issues) were lower in patients with eGFR <60 ml/min in both vildagliptin (36 vs. 38%) and SU (22 vs. 26%) groups. Moreover, reduced tolerability (p=0.002) was linked to weight gain and this issue was greater with SU add-on therapy.

Conclusions: DPP-4 inhibitors may have the potential to retain and simplify glycaemic control in RI patients in a real-life setting, without tolerability issues including weight gain or hypoglycaemia.

Comparative analysis of the family doctor's role in providing diabetes care in Ukraine and different countries

Tkachenko V[1]
[1]Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: The growth in the prevalence and morbidity of diabetes and its complications means that primary care doctors (PCDs) in Ukraine are having to become more actively involved in diabetes care. The aim of the study is to compare the role of PCDs in providing diabetes care in different countries and Ukraine.

Design and method: The 27 foreign and 898 Ukrainian PCDs took part in a survey of diabetes care. Meta-analysis of literature was conducted for 2000-2014. Statistical analysis was by Excel 2007, SPSS.

Results: Foreign PCDs showed they consult 22.3±4.4% patients with diabetes per week. Twenty-two countries use national/European guidelines; four countries use Canadian/American guidelines. The recommended level of HbA1c is usually individual and varies by 6.5-8%. The diabetes care in 21 countries is conducted by a multidisciplinary command. The main co-ordinator is a PCD who works with a specially trained nurse. Foreign PCDs usually conduct patient monitoring and education, initiate glucose-lowering pharmacotherapy and, in 15 countries, insulin thera-

py. The HbA1c levels achieved are 7-8% in 18 countries and ≤7% in 10 countries. The Ukrainian PCDs have been actively involved in diabetes care since 2012 by new protocol. They started by using perioral glucose-lowering pharmacotherapy and conducted the monitoring and education of 26.01% diabetes patients. A significant increase in monitoring was found: the percentage of patients with determined HbA1c levels (increase of 44.87%, $p > 0.05$), total cholesterol ($p < 0.05$, increase of 68.03%), kidney function ($p < 0.05$, increase of 120.07%), limb inspection ($p < 0.05$), eye fundus examination ($p < 0.05$). But the achievement of the recommended target levels remained the same in two years of implementing the protocol (HbA1C=9,0±0,18%). No significant differences between indexes of the patients of PCDs and endocrinologists have been identified that was a positive sign.

Conclusions: According to the experience of other countries, the results of bringing PCDs to diabetes care will be more significant in Ukraine in next years.

Changes of diabetes prevalence and incidence indexes in the Kiev region during the implementation of a new clinical protocol

Tkachenko V[1]
[1]Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: An analysis of the results of the implementation of clinical protocols is the issue of the day in countries around the world. The aim of the study is to conduct a comparative analysis of the basic indexes of the health of the population and the skilled provision of diabetes care before (2010-2012) and after (2012-2014) the implementation of a new clinical protocol in diabetes care in the Kiev region and in Ukraine (order of Health Ministry of Ukraine 21st December, N° 1118).

Design and method: Analysis of statistical reports from medical establishments. Statistical analysis by Excel 2007, SPSS.

Results: The degree of cover by endocrinologists in the Kiev region for 2012-2014 changed statistically not substantially (by 7.5% from 0.40 to 0.43 in a population of 10 thousand), while the degree of cover by general practitioners increased substantially by 140.57% from 1.06 to 2.55 in a population of 10 thousand ($p<0.01$). The prevalence of diabetes grew substantially in the Kiev region for 2010-2012, but for 2012-2014 it stabilized (2012 – 27.39, 2014 - 27.06 in a population of 10 thousand, an increase of -1,2%) attaining the level of the Ukrainian index. Morbidity from diabetes with complications in the Kiev region substantially decreased by 5.02% from 2012-2014 (from 9.17 to 8.71 in a population of 10 thousand, $p <0.01$), as well as in Ukraine - by 12.09% (from 8.6 to 7.56 in a population of 10 thousand, $p <0.01$). The percentage of patients hospitalised with diabetes in the Kiev region for 2012-2014 diminished ($p<0.01$). The primary disability certainly tended to diminish and the death rate certainly diminished by 8.33% ($p <0.01$).

Conclusions: The implementation of new clinical protocol in diabetes care had a positive effect.

Diabetes and medical devices: which device for which patient?

Abis G[1], *Mastinu F*[2], *Podda B*[3], *Solinas G*[1]
[1]University of Sassari, Sassari (Italy); [2]ASL n. 5, Oristano (Italy); [3]ASL n. 8, Cagliari (Italy)

Aim(s) or purpose: We propose to investigate the profile of patients currently on insulin therapy with an insulin pump (CSII) and those on multiple daily injections (MDI), in order to identify the variables that influence the use and the choice of two different types of devices.

Design and method: A cross-sectional study will be conducted to estimate the prevalence of diabetes with MDI therapy and insulin pump (CSII). Also, a matched case-control (1:1) design will be performed considering as cases patients who have been undergoing insulin pump therapy for at least six months and as controls the patients with MDI therapy. The patients enrolled in this study are ≥ 18 years (adults) and < 18 years (paediatric). These epidemiological studies are preceded by a pilot study conducted in the Health Centers of Sardinia (Italy) randomly selected to validate the questionnaire used for the interview. Data collection involves the detection of patient clinical data (medical record source) and life-style data (structured questionnaire source) by an interview form, by the same interviewer. The interaction between interviewer and interviewee is face-to-face and the patient enrolled in the study did not see the questionnaire. In this way, the emotional independence of the answers to the questionnaire and the consequent absence of conditioning the reading of the same are ensured. Multivariate statistical analysis and logistic regression models are used for the statistical analysis of data collected.

Results: To define the profiles of patients with insulin-dependent diabetes and the effects of demographic and clinical variables, lifestyle and behaviour on the choice of the most appropriate medical device.

Conclusions: The results of the research are innovative to diabetes care in general practice because they will help medical professionals to personalize care and help each diabetic patient choose the most suitable medical device (MDI or CSII).

Diabetes ketoacidosis after sodium glucose co-transporter 2 inhibitor initiation

Chandra P[1]
[1]LMC, Mississauga (Canada)

Aim(s) or purpose: There is a growing concern about the rare association of DKA (diabetes ketoacidosis) with SGLT2i (sodium glucose co-transporter 2 inhibitors). In this case series of two patients we describe patients who were recently diagnosed with type 2 diabetes mellitus but developed DKA shortly after initiation of SGLT2i therapy.

Design and method: Both these patients presented with DKA a few months later and their clinical profile is in the table attached (Table 1)

	Patient 1	Patient 2
Type of diabetes (initial diagnosis)	Type 2	Type 2
Age of onset	34	52
Ethnicity	Caucasian	Indian
BMI	37	24
Baseline treatment	Metformin Liraglutide	Janumet, detemir, novorapid
Duration of diabetes before GL2i initiation	4 months	2 years
Hemoglobin Al cupon SGLT2i initiation	8%	8,9%
SGLT2i initiated	Canagliflozin 300 mg once a day	Canigliflozin 100 mg once a day
Medicine adherence	Good	Good (Bowever insulin doses reduced as accuabecks improved with SGLT2i)
Duration of SGLT2i treatment bofere DKA presentation	3 months	3 months
Upon presentation		
pH	7.18	6.84
Anion Gap	36	19.9
Blood sugar (mmol/L)	18.5	26.9
Hemoglobin Alc (%)	10.6	7.9
C peptide at diagnosis of diabetes (pmol/L)	784	Not available
C peptide after resolution of DKA (pmol/L)	170	< 33
GAD antibody status (normal < 1 u/mL)	5.0	Not available
Type of diabetes (final diagnosis)	Latent autoimmune TIDM	Latent autoimmune TIDM

Conclusions: The cases highlight the need for treating clinicians to choose SGLT2i wisely in young newly diagnosed patients where the possibility of adult onset type 1 diabetes should be ruled out before initiation of SGLT2i therapy.

Diabetes self-management support intervention in type 2 diabetes: the outcomes of a Portuguese experience

Teles I[1], *Santos D*[2], *Silva T*[3], *Caetano T*[4], *Silva R*[4], *Ramos R*[4]
[1]Flor de Sal Family Health Unit– ACeS Baixo Vouga, Aveiro (Portugal); [2]Aveiro Aradas Family Health Unit - ACeS Baixo Vouga, Aveiro (Portugal); [3]Public Health Unit – ACeS Baixo Vouga, Aveiro (Portugal); [4]Shared Healthcare Resources Unit – ACeS Baixo Vouga, Aveiro (Portugal)

Aim(s) or purpose: To evaluate the outcomes of the "*Mexer com a Diabetes*" ("Walk with Diabetes") project in diabetes control.

Design and method: Diabetes self-management support intervention provided by a multidisciplinary team (nurse, nutritionist, physicians, physiotherapist and psychologist). It consists of seven 2-hour, group educational and data collection sessions, carried out over a period of 12 weeks. The sessions focus on motivation, diabetes (pathophysi-

ology, treatment and complications), nutrition and physical activity. Prospective study of type 2 diabetic subjects who accepted to participate in the referred project (N=65). The only exclusion criteria were missing the first and/or the follow-up sessions. Anthropometric data (weight, abdominal circumference, body mass index [BMI]), fat mass percentage) were collected during the first and last sessions. The last HbA1c value before participation and the first value post intervention were obtained from patients' clinical records. Statistical analysis was performed with IBM SPSS® 20 (paired samples T test).

Results: A total of 30 subjects were included in the analysis (36.7% female, mean age 68.8 years). Comparing before and post intervention, the mean reduction in the HbA1c value, fat mass percentage and BMI were -0.46% (p=0.045), -1.83% (p<0.05) and -0.27kg/m2 (p=0.03), respectively. Reductions in weight (-0.43kg) and abdominal circumference (-0.17cm) were also observed, but without statistical significance.

Conclusions: The results suggest a positive effect on self-care behaviours and health outcomes meeting the results of other diabetes self-management support interventions. Such interventions are crucial complementary strategies for routine medical appointments. It remains unclear if the benefits will persist in the long term.

Effects of diet and exercise modifications in patients with type 2 diabetes treated with metformin and/or dietary measures. DiEPTiR study

Benito P[1], Ávila L[2], Luque LG[3], Guerrero A[1], Abril Á[1], Ortiz J[4]
[1]Mairena del Aljarafe Health Center, Sevilla (Spain); [2]Almachar Health Center, Málaga (Spain); [3]San Juan de Dios del Aljarafe Hospital, Sevilla (Spain); [4]Tomares Health Center, Sevilla (Spain)

Aim(s) or purpose: To assess the effects of personalized diabetes education focused on modifying diet and exercise depending on postprandial and post-exercise self monitoring blood glucose (SMBG) readings in patients treated with metformin and/or dietary measures.

Design and method: A six-month, experimental, randomised, controlled trial in DM2 patients randomly assigned to two groups of 45 subjects. Sample size has been calculated to provide a statistical power of 0.80 and an alpha error of 0.05 in detecting a reduction in HbA1c of 0.5%. It is estimated that 25% of patients will be lost to follow-up .
- Intervention group: instructions have been given to vary diet composition and exercise depending on postprandial and post-exercise SMBG. If postprandial levels exceed 180 mg/dl, or 140 mg/dl after exercise, they will have to reduce their intake of quick-absorbing carbohydrates or modify their exercise.
- Control group: standard diabetic education has been given, without SMBG.

HbA1c levels will be measured at the beginning, three and six months later, and six months after finishing the trial. Changes in SMBG readings will be noted down by the intervention group.
Variations in HbA1c levels will be contrasted in both groups, as well as postprandial and post-exercise SMBG at the beginning, three and six months after the beginning of the trial in the intervention group.
The trial has been approved by a local ethical committee. All patients provided written informed consent. The database has been encrypted, respecting patients confidentiality.

Results: We hope to obtain a greater reduction in HbA1c levels in the intervention group. We also believe that postprandial and post-exercise SMBG levels will be reduced in this group.

Conclusions: If the trial outcomes are meaningful, changes in diabetes education and SMBG readings among these patients could be recommended.

Factors affecting the delivery of pediatric diabetes care at initial diagnosis

Yafi M[1], Pagan M[1], Collins K[1], Mikulinka A[1], Givens C[1]
[1]The University of Texas Health Science Center at Houston, Texas (USA)

Aim(s) or purpose: The new onset diagnosis of diabetes (type 1 and type 2) in pediatrics places a huge burden on affected children and their families. Many socio-economical and psychological factors can influence the initial delivery of pediatric diabetes education at diagnosis and may even affect future delivery of care. The aim of this review is to identify the most prominent non-medical factors that our practice has faced and to provide examples in each group.

Design and method: We have asked the certified diabetes educators (CDE) in our practice to identify and group factors that may interfere with the initial pediatrics diabetes education of the patient and family. They were then asked to rank the top two causes that could have been responsible for delaying discharge from the hospital.

Results: During 2014, our practice saw a total of 108 new cases of type 1 and type 2 pediatric diabetes (up to the age of 18 years). The average length of stay in the hospital was three days to get medical stabilization and diabetes ed-

ucation. The 22% of cases had a delayed stay beyond this average due to non-medical conditions. We identified seven non-medical causes and provided some examples. These factors were: educational, financial, social, psychological, language barriers, unrealistic expectations about diabetes and immigration status.

Conclusions: Educational factors that affected the caregivers in understanding, performing and supervising the diabetes care, were the most common cause of discharge delay. This was followed by social and family factors. The diabetes education process may need to be repeated several times allowing caregivers ample time to practice diabetes management under the supervision of a healthcare provider prior to discharging the patient home. It is of great importance to allow the caregivers to express readiness for discharge prior to switching the diabetes care to an outpatient basis. All other factors should be evaluated and addressed.

Features of arterial hypertension in the cardiovascular form of diabetic autonomic neuropathy

Kayumov J[1]
[1]Tashkent Medical Academy, Tashkent (Uzbekistán)

Aim(s) or purpose: To examine for hypertension patients with type 2 diabetes (T2DM) with a cardiovascular form of diabetic autonomic neuropathy.

Design and method: The study involved 50 patients with T2DM, average age 54.3±3.2. The control group consisted of 10 healthy people aged 56.6±2.26. Standard cardiovascular tests (ITC) were conducted on all patients for the detection of a cardiovascular form of diabetic autonomic neuropathy (DAN). As a result, all patients were divided into groups depending on the availability of DAN DAN +, and DAN -. A survey was conducted on the patients in the study, analysing ECG heart rate variability and the dispersion of the duration of electrical ventricular systole.

Results: DAN diabetic patients associated with a significant decrease in heart rate variability ($p < 0.01$) and longer ($p < 0.001$) and the dispersion of the interval QT ($p < 0.001$). The absence of BP lowering at night is a clinically significant disorder as it is associated with the development of left ventricular hypertrophy and increases the risk of CVC. Increased SBP to 10 mm Hg at night is associated with a 31% increase in cardiovascular risk. Of the 30 patients surveyed, there were three dippers (10%) and ten non-dippers (33.3%). The SBP of 17 of the patients (56.7%) peaked at night. Patients with DAN had a daily SBP 143 ± 8.7 mm Hg; nightly SBP was 136.8 ± 8.3 mm Hg. Average daily DBP is 90.3 ± 5.5 mm Hg and nightly DBP is 81.7 ± 5.0 mm Hg. The SBP of 30 patients showed type 2 diabetes in 10 patients (33.3%), 8 (26.7%) and 12 (40%) patients night-picker.

Conclusions: In patients with T2DM, DAN hypertension was observed in 30% of non-dippers, from 48.4% night-picker. The course of hypertension with type night-picker increases the development of CVC in patients with T2DM with cardiovascular form of DAN.

Gender- and age-related imbalances in the introduction of dual oral anti-diabetes therapies worldwide

Nilsson P[1]*, Brath H*[2]*, Bader G*[3]*, Paldánius P*[3]*, Mathieu C*[4]
[1]Skåne University Hospital, Malmö (Sweden); [2]Health Centre South, Vienna (Austria); [3]Novartis Pharma AG, Basel (Switzerland); [4]Catholic University of Leuven, Leuven (Belgium)

Aim(s) or purpose: Physicians' perception and attitude influence T2DM management and health outcomes in men and women. We explored gender-related differences in time to T2DM treatment intensification, the selection of second-line oral antidiabetic drugs (OAD) in different world regions, and the impact of age or weight gain in younger women (YW: <45 years) vs. older women (OW: ≥45 years) in response to dual therapy.

Design and method: We used descriptive statistics and adjusted co-variate analysis to examine data from a 1-year, observational study, EDGE, wherein the effectiveness of second-line OAD regimens was studied worldwide.

Results: Women (W) and men (M) were enrolled equally across regions, except in India (W: 38.6%), and the Middle East (W: 38.4%). Treatment intensification occurred late across regions (HbA1c, 8.2±1.34%), but marginally earlier in women (W: 8.1±1.33% vs. M: 8.2±1.34%; p=0.113%; p<0.001). Dual therapy was introduced later in YW (8.3±1.32%) vs. OW (8.1±1.32%). In Europe, East Asia and Latin America a dual therapy regimen with sulphonylurea (SUs), or a DPP-4i (vildagliptin), were prescribed equally among both genders. In India and the Middle East, men received dual regimens containing SU or vildagliptin, more often than women; men were twice as likely as women to receive DPP-4i-containing dual therapy. In general, women more likely received vildagliptin than SU, particularly YW: in Latin America, 89% of YW received vildagliptin vs. 11% receiving SU. OW less often achieved HbA1c <7.0% without weight gain (≥5%) vs. YW (OR 0.876, p=0.037). Mean end-of-study HbA1c levels were similar (OW: 7.08% vs. YW: 7.03%), and represented a clinically significant reduction vs. baseline.

Conclusions: In both genders, treatment intensification of failing monotherapy occurred late. Gender imbalance in therapy choice across regions and evidence of later intensification in YW suggests a further need to reduce the impact of attitudes and cultural or environmental factors on the management of T2DM worldwide.

Glycaemic responses to a DPP-4 inhibitor in elderly people with middle-age onset versus old age onset T2DM

Agarwal A[1], Paldánius P[2], Strain WD[3]
[1]Novartis Pharmaceuticals Corporation, New Jersey (USA); [2]Novartis Pharma AG, Basel (Switzerland); [3]University of Exeter Medical School, Exeter (UK)

Aim(s) or purpose: T2DM is rapidly increasing in people >65 years of age, comprising middle-age onset of diabetes (MAOD, <65) and old-age onset of diabetes (OAOD, ≥65). DPP-4 inhibitors have a well-established efficacy and safety profile in older adults with T2DM. This study explores response to the DPP-4 inhibitor, vildagliptin (VILDA) in MAOD and OAOD cohorts.

Design and method: This post hoc analysis pooled people with diabetes (age ≥70 years) from 33 VILDA clinical trials (POOL) and from a study evaluating investigator-defined, glycaemic targets in elderly people (INTERVAL). Descriptive statistics and logistic regression analyses assessed the success in achieving HbA1c goals.

Results: Of 1756 participants, 70% had OAOD. HbA1c reduction and proportion of people achieving HbA1c goals with VILDA were similar and independent of onset age in the cohorts. The comparator response rate was numerically higher in OAOD versus MAOD. The odds ratios (OR) for achieving HbA1c goals were superior with VILDA than placebo (INTERVAL) and comparators (POOL).

	MAOD				OAOD			
	POOL		INTERVAL		POOL		INTERVAL	
	VILDA n=232	COMP n=171	VILDA n=67	PBO n=63	VILDA n=658	COMP n=435	VILDA n=63	PBO n=67
Age (years)[a]	72±2.24	72±2.04	74±3.45	73±3.35	74±3.25	74±3.23	76±4.71	75±4.29
HbA1c (%)[a]	8.0±0.94	8.0±0.88	7.9±0.70	8.0±0.61	7.9±1.00	7.8±0.96	7.9±0.81	7.9±0.75
Efficacy								
HbA1c drop (%)[b]	-0.9±0.06	-0.7±0.07	-0.8±0.08	-0.1±0.12	-0.8±0.04	-0.7±0.05	-0.8±0.09	-0.4±0.13
OR (95% CI)								
<7.0%	1.77 (1.05, 2.98), p=0.0316		3.99 (1.62, 9.86), p=0.0027		1.14 (0.85, 1.54), p=ns		4.34 (1.82, 10.30), p=0.0009	
<7.5%	2.24 (1.29, 3.89), p=0.004		3.37 (1.55, 7.34), p=0.0022		1.18 (0.84, 1.65), p=ns		2.73 (1.21, 6.14), p=0.0153	
<8.0%	1.93 (0.99, 3.72), p=0.0513		17.61 (5.08, 61.02), p<0.001		1.61 (1.04, 2.48), p=0.0318		2.40 (0.86, 6.71), p=0.0962	

[a] mean±SD; [b] mean±SE.
COMP: comparator; PBO: placebo.

Conclusions: VILDA is equally efficacious in elderly people with T2DM independent of age at onset and possible age-related differences in the underlying pathophysiological processes.

How to find the best information about diabetes on the internet? Diabeweb, the online reference diabetes tool

Cuatrecasas G[1], Benito B[1], Abadias M[2], Burgués A[2], Varona C[3], Franch J[3]
[1]Network of Groups for the Study of Diabetes (RedGDPS) Foundation, Barcelona (Spain); [2]Esteve, Barcelona (Spain); [3]Tbhealthcare, Barcelona (Spain)

Aim(s) or purpose: To have an online search engine about diabetes to ensure access to accurate, quality information that is timely and reliable.

Design and method: A systematic review of websites, blogs and apps about diabetes is performed by a team of experts in health and communication technology. A search and review of sites, blogs and apps based on or related to diabetes is performed. A computer rating (0 to 5 points) is assigned according to the following criteria: update, identity of the author(s), accessibility, navigability, quality of content, design, multimedia, links, visits or downloads and professional expertise or available users. The rating of platforms also includes the source of information, type of

diabetes, format, subject, target (professional/patient). A brief description of each platform highlighting its differential features is added. The search engine includes only those platforms that have achieved a score ≥3.

Results: A total of 224 site-blogs and 40 apps were reviewed. Platforms with scores ≥3:115 sites (51.3%) and 38 apps (95%). Language of the sources: Spanish (90%), English (8%). Source of information: patient associations (33), scientific societies (26), hospitals/medical centers (15), general information (12), institutional (9), pharmacy (7), others (38). Theme: 95% of the platforms addressed both DM1 and DM2. 88% of the platforms contained general information, about 90% explained diabetes complications, 84% included nutritional information, 78% news and events, 72% information about exercise, 61% travel, 60% digital resources. In addition, 60% platforms had information about children, and 49% about the elderly. 45% have their own publications and magazines and 34% of platforms included training. Lastly, 50% of platforms interacted with social networks. During the review, 24 web-blogs and 9 apps were highlighted and marked with an accreditation seal (≥4 points).

Conclusions: A system for assessing the quality and reliability of the information-consultation on diabetes on the internet is necessary. Diabeweb is an interactive online tool that allows the public to select reliable, high quality platforms on the subject. Diabeweb's starting goal is to be the reference platform for diabetes.

How we start pharmacological treatment in older people with diabetes in Spain

Ávila L[1], Sangros J[2], Martínez J[3], García FJ[4], Carrillo L[5], Torrecilla J[6]
[1]Velez-Norte Clinical Management Unit, Málaga (Spain); [2]Torrero La Paz Health Centre, Zaragoza (Spain); [3]Mariano Yago Yecla Health Centre, Murcia (Spain); [4]Porriño Health Centre, Pontevedra (Spain); [5]La Victoria de Acentejo Health Centre, Santa Cruz de Tenerife (Spain); [6]Bombarda Health Centre, Zaragoza (Spain)

Aim(s) or purpose: Therapeutic inertia in addition to poor compliance are among the poor metabolic control causes in patients with type 2 diabetes mellitus. The ESCADIANE study has analysed the characteristics of diabetic patients over 65 years old in Spain and researched when we started pharmacological treatment. The aim is to find out the glycosylated haemoglobin (HbA1c) levels when doctors start oral pharmacological treatment, or insulin therapy in older people.

Design and method: This is a multicentre, descriptive, transversal, observational study carried out in Spain. We studied HbA1c levels to start oral antidiabetic treatment or insulin and assessed differences in sex and age (people younger and older than 75).

Results: We studied 947 diabetic patients. Average age 76.4 ± 6.7 years old; women were 77 ± 7.0 years old and men were 75.84 ± 6.3 years old. 82.3% of our patients were treated with oral antidiabetic therapy and just 25.5% had insulin treatment.

The glycosylated haemoglobin average at the beginning of oral treatment was 7.9 ± 1.2%. In men the HbA1c average to start oral treatment was 7.8 ± 1.2% and in women was 7.9 ± 1.2%. There were no differences between people older or younger than 75 (HbA1c at the beginning of treatment 7.9 ± 1.2%.). Nevertheless the median to start treatment for the overall population was 7.8% (7.6% for men and 7.8% for women). Insulin therapy started with HbA1c of 8.9 ± 1.63% and 25% of patients started insulin therapy with HbA1c levels higher than 9.5%.

Conclusions: The pharmacological treatment of older diabetic patients starts with HbA1c around 8% and it is similar in patients older or younger than 75. It is possible that doctors undervalue the functional capacity of older patients when they intensify the pharmacological treatment.

Importance of gender in cardiovascular risk of people with diabetes mellitus for health professionals. Study ladydiab

Ávila L[1], Buil P[2], Millaruelo JM[3], Cos-Claramunt X[4], Artola S[5], Gómez-García MC[1]
[1]Velez-Norte Clinical Management Unit, Málaga (Spain); [2]Azpilagaña Health Centre, Pamplona (Spain); [3]Torrero La Paz Health Centre, Zaragoza (Spain); [4]Sant Martí de Provençals Primary Health Care Centre, Barcelona (Spain); [5]José Marvá, Madrid (Spain)

Aim(s) or purpose: To assess the knowledge and attitudes of healthcare personnel in charge of managing and caring for patients with type 2 diabetes mellitus, according to the importance of gender in cardiovascular risk of these patients.

Design and method: Validated survey on knowledge and attitudes aimed at health workers (primary care, specialists and nurses), referring to the importance of gender in cardiovascular risk in diabetic people. The descriptive analysis of qualitative variables was performed using frequency distribution.

Results: 1250 surveys were answered. Average age 49.04 ± 9.8 years, 53% of women. In our study, 54% of health workers know that cardiovascular disease in diabetic women is poorly represented in such studies. The 40% of doctors state that cardiovascular disease is more frequent in females. The 63% think that the emergency services arrive late because women value their problem less. The 67% of doctors know that cardiovascular risk in diabetic women is

therefore undervalued by women as health workers because it is often less specific than in men. The performance of diagnostic tests in women with ischemic heart disease has less predictive value, only 14% of respondents were aware of this fact. In terms of prognosis, 41% of doctors know it is worse than in the diabetic male.

Conclusions: Doctors' knowledge about the importance of gender in cardiovascular risk in people with type 2 diabetes mellitus is sadly lacking. Only 31.59% correctly answered at least 50% of the questions. To avoid the lack of knowledge about these gender differences and their clinical and functional impact among health personnel responsible for the care of these patients, it would be a good idea to educate the next generation about these points in order to change the situation.

Improvement in HbA1c in patients with type 2 diabetes mellitus treated with once-weekly dulaglutide across baseline body mass index (BMI) subgroups at 26 or 52 weeks

Vázquez L[1], Jódar E[2], Trescoli C[3], Nicolay C[4], Reviriego J[1], Gentilella R[5]
[1]Eli Lilly and Company, Madrid (Spain); [2]Quirón University Hospital, Madrid (Spain); [3]La Ribera University Hospital, Alzira (Spain); [4]Lilly Deutschland GMBH, Bad Homburg (Germany); [5]Lilly Diabetes, Eli Lilly Italia, Sesto Fiorentino (Italy)

Aim(s) or purpose: This *post-hoc* analysis investigated the efficacy of dulaglutide and active comparators across baseline BMI categories (BMI <30, ≥30–<≥35 or ≥35kg/m^2) in patients with type 2 diabetes (T2D) using data from the completed phase 3 randomised trials AWARD-1 to -6.

Design and method: Patients with T2D received dulaglutide (1.5 mg, n=1719 [AWARD-1 to -6]; 0.75 mg, n=1417 [AWARD-1 to -5]), or metformin (n=268), sitagliptin (n=315), exenatide (n=276), liraglutide (n=300), or insulin glargine (n=558), or, in addition to other concomitant background treatments. Analysis of covariance models (AWARD-1 to -5) or mixed-effects model for repeat measures (AWARD-6), including treatment-by-BMI subgroup interaction terms, were applied by study to estimate the effect of each treatment on HbA1c at 52 weeks (AWARD-1 to -5) or 26 weeks (AWARD-6) and to compare dulaglutide and corresponding active comparators for patients with baseline BMI <30, ≥30–<35 or ≥35kg/m^2 (intention-to-treat population).

Results: Baseline mean BMI in each study ranged from 31.2–33.6 kg/m^2. In all studies, dulaglutide 1.5mg, dulaglutide 0.75mg and all active comparators achieved statistically significant HbA1c reductions from baseline overall and in all BMI subgroups. The ranges of mean HbA1c reductions with baseline BMI <30, ≥30–<35 or ≥35 kg/m^2, respectively, were: dulaglutide 1.5 mg: -0.64 to -1.39%, -0.8 to -1.53%, and -0.64 to -1.54%; dulaglutide 0.75 mg: -0.72 to -1.46%, -0.49 to -1.46%, and -0.44 to -1.36%; active comparators: -0.47 to -1.32%, -0.42 to -1.36%, and -0.29 to -1.40%. No statistically significant treatment-by-BMI subgroup interactions were found for reductions in HbA1c.

Conclusions: Dulaglutide (1.5mg or 0.75mg) is an effective treatment for patients with T2D, regardless of baseline BMI. There was no evidence of any treatment-by-BMI subgroup interaction for HbA1c change, suggesting that baseline BMI had no effect on the relative antihyperglycaemic efficacy associated with dulaglutide versus comparator antidiabetic agents.

Knowledge patterns about gender differences in type 2 diabetes mellitus cardiovascular risk among healthcare professionals

Buil P[1], Gómez-García MC[2], Millaruelo JM[3], Cos-Claramunt X[4], Franch J[4], Ávila L[2]
[1]Osasunbidea (Navarre Health Service), Pamplona (Spain); [2]Velez-Norte Clinical Management Unit, Málaga (Spain); [3]Aragonese Health Service, Zaragoza (Spain); [4]Catalan Health Institute, Barcelona (Spain)

Aim(s) or purpose: To identify the main knowledge patterns among healthcare professionals responsible for the management and care of patients with type-2 diabetes mellitus, according to the importance of gender in cardiovascular risk of these patients.

Design and method: Validated survey on knowledge and attitudes aimed at health workers in Spain and Latin America, referring to the importance of gender in cardiovascular risk in diabetic people. The answer patterns were identified by principal component analysis followed by promax orthogonal rotation. The appropriateness of the dataset was confirmed by the Kaiser-Meyer-Olkin (KMO) measure. In determining the number of retained factors we considered the eigen values>1 and the interpretability of the factors. The score for each participant was calculated by adding up their coefficient and categorizing them into quartiles. The chi-square test was calculated between the highest and the other quartiles.

Results: The study sample was 1,250 surveys answered. Average age 49.04 ± 9.8 years, 53% women. After the KMO test we removed two questions. The KMO coefficient was 0.818. We identify four patterns, which explained the 35% of the total variance: epidemiologic-initial diagnostic pattern (EIDP), the complex diagnosis pattern (CDP), the epidemiologic pattern (EP) and the communication pattern (CP). Participants in the fourth quartile of the EIDP were

more probably from Spain and family physicians. Participants in the highest quartile of the CDP were more probably women, internal medicine specialists and more interested in diabetes. The EP consisted of women, family physicians who were more interested in diabetes. Finally, the highest quartile of CP participants were women, more interested in diabetes, and from Latin America. All of these patterns were more frequent in participants who have been working for more than 20 years.

Conclusions: The EIDP and the EP was more frequent among the family doctors, and the CDP among the internal medicine specialists as expected. Any pattern was more frequent between endocrinologists.

Medical and social efficiency of type 2 diabetes management in primary care in Ukraine

Tkachenko V[1]
[1]Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: The assessment of quality of care during the implementation of new guidelines is relevant and necessary. The aim is to determine the medical and social effectiveness of new guideline implementation in type 2 diabetes management in primary care.

Design and method: The study involved 173 patients with type 2 diabetes (ages 55,13 ± 0,61 years, 112 women and 61 men) who, depending on the specialty of the doctor were divided into 2 groups: the first managed by primary care physicians, the second by endocrinologists. The survey and study of HbA1c level, fasting glucose, lipid profile were conducted to assess their medical and social effectiveness. Effectiveness was assessed using coefficients. Statistical analysis was performed using Excel 2007, SPSS.

Results: The low treatment satisfaction and poor quality of life were determined in patients in general, and diabetes provided additional significant adverse impact. Quality of life, treatment satisfaction, and the degree of diabetes control were independent of doctor specialty, but depended on the type of therapy. Patients on insulin therapy had significantly higher levels of HbA1c and cholesterol LDL; the quality of life was assessed as higher, although the impact of diabetes on quality of life were more significant than in patients on the tablets. In addition, there was a correlation between the weighted average impact of diabetes on quality of life and the duration of diabetes ($r = -0.32$, $p<0.001$), as well as treatment satisfaction and quality of life ($r = -0.20$, $p <0.05$).

Conclusions: No significant differences between the groups of patients who were managed by primary care physicians and by an endocrinologist were found, indicating that primary care physicians provide a sufficient level of quality diabetes care. The integral efficiency coefficient was higher in primary care physicians and may be caused by the management of patients with milder diabetes.

Metabolic control in type 2 diabetes comparing A1c below 7% versus individualized glycemic goals in patients with type 2 diabetes in Spain

Álvarez-Guisasola F[1], *Cebrian-Cuenca A*[2], *Orozco-Beltrán D*[3], *Ruiz-Quintero M*[4], *Millaruelo JM*[5], *Cos-Claramunt X*[6]
[1]La Calzada Health Centre, Gijón (Spain); [2]San Anton Health Centre, Cartagena (Spain); [3]Miguel Hernández University. Cabo Huertas Health Centre, San Juan de Alicante (Spain); [4]Agost Health Centre, Alicante (Spain); [5]Torrero La Paz Health Centre, Zaragoza (Spain); [6]Sant Marti Primary Health Care Centres, Jordi Gol Primary Care University Research Institute, Barcelona (Spain)

Aim(s) or purpose: To assess the compliance of glycemic targets, by comparing a general HbA1c objective (<7%) versus an individualized goal based on individual patient characteristics and comorbidities. The hypothesis of this study is that individualized HbA1c calculation will bring us better results of good control compared with the traditional HbA1c thresholds.

Design and method: Observational cross-sectional multicentre study. Setting: primary care. A random sample of 350 patients with type 2 diabetes (DM2) have been included from all over regions from Spain. Exclusion criteria: Patients who do not have at least two visits recorded in 2015 or lack of data needed to calculate the individualized goal. Period of study: 2015. Individualized goals were calculated according to ADA criteria (2015) including: life expectancy, risk of hypoglycaemia, comorbidities, resources and support system, disease duration, established complications, patient attitude in adherence to therapy, and cognitive function. We collected clinicians' data as sex, age, HbA1c, and also physicians' experience (years) and number of diabetic patients attended/year. We will determine the proportion of patients on target, compared according to both criteria (general target HbA1c below 7% versus glycemic targets based in parameters pertaining to individual patient characteristics and comorbidities). The patients' characteristics will be described for patients who change their classification (good/poor control) and for those who don't change with both criteria.

Results: It will be available for presentation in the conference.

Conclusions: Ongoing clinical study.

Motivation, education, skills and supervision to achieve better diabetes care in a general practice environment (MESSAGE model)

Shpigelman M[1], Merzon E[1], Tamir O[3], Raz I[3], Vinker S[1], Golan-Cohen A[1]
[1]Medical Division, Leumit Health Services, Tel Aviv (Israel); [2]Department of Family Medicine, Tel Aviv University, Tel Avid (Israel);
[3]D-Cure Foundation, Tel Avid (Israel)

Aim(s) or purpose: There are many barriers to attain effective diabetes care at the different levels: the patient, the healthcare team, the environment of the organisation(s). As family physicians have appointment slots of "less than 10-minutes", they fail to meet the needs of the patient(s) and this may negatively affect adherence to treatment recommendations and result in poor disease management. Leumit Health Services (LHS) developed a unique model of chronic care which includes enhancement of the motivation, education and communication skills of the primary care team(s); and defines protected time for pro-active diabetes care, combined with supportive supervision of certified diabetes educators. The aim of our study was to evaluate to what extent the new model affects the quality of diabetes care in a general practice environment.

Design and method: 18 primary care clinics in the Central District of LHS were enrolled into the pilot. Primary care physicians and nurses attended a training program using a curriculum developed by the study team. After graduation, primary care teams received three hours/week for pro-active diabetes management. Our outcomes were quality indicators in diabetes care, described as a proportion of DM patients with HbA1c <7, HbA_{1c} > 9, LDL cholesterol <100 mg/dl, and blood pressure < 130/80.

Results: The proportion of controlled diabetics (HbA1c <7) significantly increased in the intervention clinics as compared to other clinics in the Central District: 25.8% vs. 7.6% (p<0.01); the proportion of uncontrolled diabetics (HgbA1c > 9) decreased by 2.2% in the intervention clinics, and increased by 1.4% in other clinics. The proportion of patients with LDL<100 mg/d significantly increased in the intervention clinics as compared to other clinics: 7.5% vs 4.3% (p<0.01). The proportion of patients with BP <130/80 increased by 1.4% in the intervention clinics, and decreased by 1.2% in other clinics.

Conclusions: Our intervention program has a significant positive effect on the quality of diabetes care. We suggest implementing the MESSAGE model in chronic disease management.

Non-adherence to insulin pump therapy: a population-based case-cohort study

Merzon E[1], Merhasin I[1], Golan-Cohen A[1], Levit S[2], Vinker S[1]
[1]Medical Division, Leumit Health Services, Tel Aviv (Israel); [2]Department of Family Medicine, Tel Aviv University, Tel Aviv (Israel);
[3]Maccabi Health Services, Petah Tikval (Israel)

Aim(s) or purpose: In recent years an increasing numbers of diabetic patients in Israel have been placed on continuous subcutaneous insulin infusion (CSII) pump therapy. This expensive device provides basal level insulin to the body with additional boluses at meal times. Patients who meet the Ministry of Health criteria, receive the pump and related equipment free of charge. Despite the increased use of CSII pumps, there is uncertainty about patients' adherence to pumps in real life. Our aim was to evaluate clinical, demographic and socioeconomic factors which are associated with non-adherence to CSII pump therapy among type 1 and type 2 adult diabetics.

Design and method: We conducted a case-cohort study in an Israeli HMO. All patients above 20 years old, with type 1 or type 2 diabetes, who received a CSII pump 2007-2013, were identified (N=707). Patients who didn't purchase pump-maintenance supplies lasting more than 180 days, were defined as non-adhered (N=355). Patients who purchased the supplies were defined as adhered (N=352).

Results: Diabetics adhered to CSII treatment as compared to non-adhered were younger, mean age 48.6 y.o. (95% CI 46.8; 50.3) vs. 52.2 (95% CI 50.6; 53.8); predominantly with Type 1 diabetes 72.4% vs. 45.9%; and had better glycemic control, mean HgbA1c level 8.6 (95% CI 8.5-8.7) vs. 9.2 (95% CI 9.0-9.4). Non-adherence to CSII treatment was positively associated with having diabetes duration longer than five years (HR=12.07, 95% CI 8.34-17.47); having poor glycemic control before starting CSII treatment (HR=3.94, 95% CI 2.85-5.45); being non-adherent to nutrition therapy (HR=4.79, 95% CI 3.41-6.74); being a smoker (HR=1.65, 95% CI 1.10- 2.48); and being obese (HR=1.41, 95% CI 1.03-1.91).

Conclusions: Only 50% of patients who received a CSII pump adhered to treatment. To prevent overprescription and overuse, we suggest assessing patients' adherence, in a selection of appropriate candidates for pump treatment.

Number of physicians visited, self-rated level of therapy adherence and metabolic control in people with T2DM: a descriptive study

Cemalettin E[1], Ünlüoğlu I[1], Bilge U[1], Ünalacak M[2], Akalın A[3], Yılmaz H[4]
[1]Eskişehir Osmangazi University Faculty of Medicine, Department of Family Medicine, Eskişehir (Turkey); [2]Hacettepe University Faculty of Medicine, Department of Family Medicine, Ankara (Turkey); [3]Eskişehir Osmangazi University Faculty of Medicine, Department of Internal

Medicine, Division of Endocrinology and Metabolism, Eskişehir (Turkey); [4]Eskişehir Osmangazi University, Faculty of Medicine, Department of Biostatistics, Eskişehir (Turkey)

Aim(s) or purpose: To identify the level of adherence to antidiabetic and antihyperlipidemic medications in diabetic patients and to determine the number of physicians visited for diabetes control and treatment.

Design and method: A survey was administered to determine the rate of achieving target levels in type 2 DM patients and associated factors. With regard to the number of physicians visited, the median was 2, the patients were divided into two categories, i.e. patients that visited two and fewer physicians (NP ≤ 2), and patients that visited three and more physicians (NP ≥ 3).A survey was administered to determine the rate of achieving target levels in type 2 DM patients and associated factors. With regard to the number of physicians visited, the median was 2, the patients were divided into two categories, i.e. patients that visited two and fewer physicians (NP ≤ 2), and patients that visited three and more physicians (NP ≥ 3)

Results: A total of 400 DM patients were included in this study. The comparison of patients by the number of physicians they visited suggests that the values of fasting glucose, HbA1C, triglyceride, low-density lipoprotein and total cholesterol were statistically lower and the level of high-density was higher in patients that visited 2 or fewer physicians. A total of 400 DM patients – i.e. 226 women aged between 51 and 65 and 174 men aged between 52 and 67 – were included in this study. The comparison of patients by the number of physicians they visited suggests that the values of fasting glucose, HbA1C, triglyceride, low-density lipoprotein and total cholesterol were statistically lower and the level of high-density was higher in patients that visited two or fewer physicians.

Conclusions: In the present study sample, the number of consulted physicians was inversely associated with effective glycemic and lipid control. In the present study sample, the number of consulted physicians was inversely associated with effective glycaemic and lipid control.

Over-stretched hospitals and under-utilized primary healthcare centers: quality of care from the perspectives of women with gestational diabetes in China

Ge L[1], Wikby K[1], Rask M[1]
[1]Linnaeus University, Vaxjo (Sweden)

Aim(s) or purpose: To explore the quality of care of gestational diabetes mellitus (GDM) and how to improve it from the perspectives of women with GDM living in China.

Design and method: In a qualitative study with semi-structured individual interviews, data were collected in a provincial hospital and a municipal hospital in the south east of China. A consecutive sampling procedure among women with GDM diagnosis in 34th–38th gestational weeks was used. Forty-four women with GDM were interviewed. Data were analysed by qualitative content analysis.

Results: Three themes emerged: the lack of professional care resources for GDM, the lack of high-quality personalized care for women with GDM, and women's suggestions about how to improve GDM care.

Conclusions: The study explored the issues concerning the quality of GDM care in China and the women's suggestions about how to improve it. The core problem on the quality of GDM care in China was over-stretched hospitals and low-efficiency, under-utilized primary healthcare centers. It is a result of healthcare resources being insufficiently invested and being inadequately assigned for a long period. A reform of clinical practices, especially in primary health care, is necessary for increasing the number of health professionals and material resources to a reasonable level and to bring about a satisfactory compliance with diabetes guidelines. It is also important to update policies, routines and diabetes guidelines with the contents of a humanistic care approach, as well as to strengthen health education concerning GDM.

Overtreatment in elderly people with diabetes type 2: in primary care (Girona)

Valladares I[1], Barrot J[1], López C[2], Rodríguez A[3]
[1]Catalan Health Institute, Salt Primary Health Care Centre, Girona (Spain); [2]Catalan Health Institute, Sarrià de Ter Primary Health Care Centre, Girona (Spain); [3]Catalan Health Institute, Anglès Primary Health Care Centre, Girona (Spain)

Aim(s) or purpose: Overtreatment in older adults (≥ 75 years of age) with diabetes is common in daily practice in primary care. Results from large trials show that harm from intensive treatment of glycaemic control seems likely to exceed the benefits. Glycaemic goals for some older adults might reasonably be relaxed, an individualized A1c goal. This analysis aims to appraise if prescribing practices of glucose-lowering agents in people with T2DM over 75 years is appropriate according to diabetes treatment guidelines.

Design and method: Cross-sectional study using data from a population-based electronic database. We retrieved data from 4,521 patients ≥ 75 years diagnosed with type 2 diabetes mellitus (T2DM), attended during 2015 in prima-

ry care centres in Girona, Spain. We performed descriptive and comparative analyses stratified by gender and age subgroups: 75–79, 80-84 and >84 years.

Results: Of 4,521 patients ≥ 75 years with T2DM, 55% were female. Both genders had longer diabetes duration. The proportion of older patients achieving an A1c level less than 6.5% was 37%, less than 7.0% was 59%, and less than 8.0% was 83.6%. Patients with A1c less than 7.0%, were more frequently treated with a combination of oral glucose-lowering drugs and 30% were treated without drugs. There was a progressive improvement in glycaemic control values (HbA1c) with age in both genders per every age subgroup (7.0%, 6.95%, 6.89% respectively).

Conclusions: Patients with longer diabetes duration had better metabolic control that increases with age and overtreatment and intensive control of glycaemic targets are not justified. It is necessary to adjust the treatment therapy according to comorbidities, functional impairments and limited life expectancy. Our findings suggest that a substantial proportion of older adults with diabetes were potentially overtreated.

Patient and provider acceptance of a target-driven diabetes education program delivered by phone: a mixed-method study embedded in a randomized clinical trial

Odnoletkova I[1], Buysse H[2], Geert G[3], Aertgeerts B[3], Annemans L[4], Ramaekers D[1]
[1]Leuven Institute for Healthcare Policy, KU Leuven, Leuven (Belgium); [2]Department of Public Health, Ghent University, Ghent (Belgium); [3]Academic Center for General Practice, KU Leuven, Leuvent (Belgium); [4]Department of Public Health, Ghent University, Ghent (Belgium)

Aim(s) or purpose: To explore the perceptions of patients, nurses and general practitioners (GPs) involved in the RCT, with regard to diabetes self-management education delivered by phone; to hypothesize the barriers and facilitators for adoption of nurse-led telecoaching in Belgian primary care.

Design and method: Mixed-method study embedded in a pragmatic clinical trial, in which a nurse-led target-driven telecoaching program was offered to 287 people with type 2 diabetes in Belgian primary care. Intervention attendance and satisfaction about the program were analysed along with qualitative data obtained during post-trial interviews with a purposive sample of patients and general practitioners (GPs) and all nurses involved into the trial. The perceptions of patients and care providers about the intervention were coded and the themes interpreted as barriers or facilitators for adoption.

Results: The telecoaching program was followed as planned by 85% trial participants randomized to the intervention group, whereof 97.5% reported to be satisfied. Interviews were held with 16 patients, 17 GPs and 6 nurses and revealed the following themes associated with potential facilitators of adoption: 1) improved diabetes understanding and control; 2) need for more patient education programs offered from the moment of the diagnosis; 3) comfort and flexibility; 4) guideline-based structure of the program; 5) established cooperation between GPs and diabetes educators; and 6) efficiency gains. Most potential barriers were derived from the provider views: 1) poor patient motivation and suboptimal compliance to “faceless” advice; 2) GP reluctance in patient referral and sharing patient information; 3) lack of legal, organizational and financial framework for telecare.

Conclusions: Nurse-led telephone education of people with type 2 diabetes was well accepted by patients and providers, whereby providers were overall more critical in their reflections.

Patient preferences for attributes of weekly injection devices for treatment of type 2 diabetes

Boye K[1], Vázquez L[2], Matza L[3], Stewart K[3], Paczkowski R[1], Cunha M[4]
[1]Eli Lilly and Company, Indiana (USA); [2]Eli Lilly and Company, Madrid (Spain); [3]Outcomes Research, Evidera, Maryland (USA); [4]Eli Lilly and Company, Lisboa (Portugal)

Aim(s) or purpose: Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) are available as weekly injections for treatment of type 2 diabetes (T2D). These medications vary in injection delivery systems, which may impact patient preference. This study examined patient preferences associated with injection delivery systems for weekly GLP-1 therapies and quantified these preferences using health state utility methodology.

Design and method: Participants diagnosed with T2D in the United Kingdom valued health states in time trade-off interviews designed to estimate utility values representing patient preferences. Health states had identical descriptions of T2D, but differed in treatment process descriptions. One health state described an oral-only treatment regimen, while six others described oral treatment plus a weekly injection. Injection health states differed in the treatment administration process (requirements for reconstituting the medication, waiting during medication preparation, and needle handling).

Results: A total of 209 participants completed interviews (57.4% male; mean age = 60.4 years; 150 patients from Scotland and 59 from London). The mean (SD) utility of the oral treatment health state was 0.89 (0.12), and all injection health states had significantly ($p < 0.01$) lower utilities ranging from 0.86 (reconstitution, waiting, and handling) to 0.88 (weekly injection without any of the three treatment administration requirements). Utility differences among health states suggest each administration requirement had a small but measureable disutility (decrease

in patient preference). Disutility values include -0.004 (reconstitution), -0.004 (needle handling), -0.010 (reconstitution and needle handling), and -0.020 (reconstitution, waiting, and needle handling). Subgroup analyses showed no statistically significant differences in utility between genders; older and younger respondents (categorized by median split); or respondents from England and Scotland.

Conclusions: The three attributes of weekly injection devices examined in this study had a measurable impact on patient preference. It may be useful to consider these attributes when choosing medication for patients initiating therapy with weekly GLP-1 RAs.

Patients with type 2 diabetes treated with once weekly dulaglutide are more likely to achieve fasting blood glucose ≤ 6.7 mmol/L at 2 weeks than metformin, sitagliptin or exenatide twice daily

Edwards M[1], Adetunji O[2], Jung H[3], Nicolay C[3]
[1]The Hillingdon Hospital, Uxbridge, Middlesex (UK); [2]Eli Lilly and Company, Basingstoke (UK); [3]Lilly Deutschland GMBH, Bad Homburg (Germany)

Aim(s) or purpose: To investigate the effects of once weekly dulaglutide and non-insulin active comparators on fasting blood glucose (FBG) values in patients with type 2 diabetes (T2D) in the AWARD-1, -3 and -5 clinical trials of dulaglutide.

Design and method: Exploratory *post-hoc,* by study analyses were performed to determine the percentage of patients receiving dulaglutide 1.5mg (n=852), metformin (n=268), sitagliptin (n=315) or exenatide BID (n=276) with FBG ≤6.7mmol/L at baseline and at 2 and 52 weeks. The odds of reaching FBG ≤6.7 mmol/L at week 2 were estimated using logistic regression.

Results: At baseline, 22.9%, 10.4% and 11.5% of patients in AWARD-1, -3, and -5, respectively, had FBG ≤6.7 mmol/L. At week 2, these percentages increased 2.8- to 4.3-fold in the dulaglutide 1.5 mg-treated groups as compared to 1.5- to 1.8-fold in the comparator-treated groups. Across AWARD-1, -3, and -5, the corresponding odds ratios of reaching FBG ≤6.7 mmol/L for dulaglutide 1.5 mg vs. active comparator were 6.1 vs. exenatide BID, 5.8 versus metformin, and 6.9 vs. sitagliptin in favour of dulaglutide 1.5 mg ($p<0.0001$, all comparisons). At week 52, the percentages of patients achieving FBG ≤6.7 mmol/L within each trial were largely maintained. The magnitude of the changes was also similar at week 52, with dulaglutide 1.5 mg-treated patients demonstrating 2.4- to 3.9-fold increases from baseline, and comparator-treated patients demonstrating 1.6- to 2.3-fold increases.

Conclusions: After 2 weeks, significantly more dulaglutide 1.5mg-treated patients had achieved FBG ≤6.7mmol/L compared to metformin, sitagliptin, and exenatide BID. This pattern of improvement was maintained at week 52. These data support the early and long-term antihyperglycaemic efficacy of dulaglutide compared with metformin, sitagliptin, and exenatide BID.

Physician-reported use of glucagon-like peptide-1 receptor agonists in the United Kingdom

Adetunji O[1], Curtis S[2], Jordan J[3], Boye K[2], Matza L[3], Martin S[2]
[1]Eli Lilly and Company, Basingstoke (UK); [2]Eli Lilly and Company, Indiana (USA); [3]Outcomes Research, Evidera, Maryland (USA)

Aim(s) or purpose: Glucagon-like peptide-1 receptor agonists (GLP-1 RAs) have been used to treat patients with type 2 diabetes (T2D) for almost a decade, and new treatments in this class have recently been introduced. The purpose of the current study was to examine self-reported practice patterns of physicians who prescribe GLP-1 RAs in the United Kingdom (UK).

Design and method: An online survey link was disseminated by email to targeted groups of UK physicians.

Results: A total of 670 physicians (226 diabetes specialists; 444 general practice [GP] physicians) completed a survey in September or October 2014. On average, physicians reported seeing 86 patients per month with T2D (specialists 134; GP 61). Almost all physicians had prescribed GLP-1 RAs (95.4% total sample; 99.1% specialists; 93.5% GP), and reported writing or authorizing an average of nine new GLP-1 RA prescriptions per month (16.8 specialists; 4.8 GP). When asked to list the types of patients who are most frequently prescribed a GLP-1 RA, physicians commonly reported patients whose glucose levels are not adequately controlled with oral medications (85.9% of physicians) and obese/overweight patients (83.7%). When asked to list the types of patients that receive the greatest benefit from GLP-1 RAs, the common responses were obese/overweight patients (listed by 92.7%), patients at high risk for hypoglycaemia (53.3%), younger patients (25.7%), and recently diagnosed patients (17.8%). The majority of physicians (76.6% total sample; 70.8% specialists; 79.5% GP) reported there was no HbA1c cut off above which they would not prescribe a GLP-1 RA. Almost all diabetes specialists (99.1%) believed they had sufficient knowledge to prescribe a GLP-1 RA, compared with only 76.1% of GPs.

Conclusions: Overall, results highlight the widespread use of GLP-1 RAs for treatment of T2D in the UK. However, almost a quarter of GP physicians report that they still do not have enough knowledge to prescribe medications in this class.

Predictors of glycaemic control in initial users of metformin

Martono D[1], Hak E[2], Heerspink HL[3], Voorham J[3], Wilffert B[1], Denig P[3]
[1]Unit of Pharmacotherapy and Pharmaceutical Care, Department of Pharmacy, University of Groningen (Netherlands); [2]Unit of Pharmacoepidemiology and Pharmacoeconomics, Department of Pharmacy, University of Groningen (Netherlands); [3]Department of Clinical Pharmacy and Pharmacology, University of Groningen, University Medical Center Groningen (Netherlands)

Aim(s) or purpose: There is limited knowledge about the predictors of glycaemic control after initiating metformin treatment. The aim of this study was to assess demographic and clinical factors, including comedication and co-morbidity, as predictors of short (6 months) and long term (18 months) glycaemic control in diabetes patients starting with metformin.

Design and method: We conducted a cohort study including type 2 diabetes patients who received their first metformin prescription between 2007 and 2013 in the Groningen Initiative to Analyse Type 2 Diabetes Treatment (GIANTT) database. The outcome of glycaemic control was defined as change in HbA1c after follow-up and as failing to achieve a target HbA1c level of 53 mmol/mol. The associations of possible predictors with these outcomes were analysed by linear and logistic regression. Additional analyses stratified by dose and adherence level were conducted.

Results: The cohort included 6,958 patients initiating metformin. Diabetes duration and lower total cholesterol level at baseline were significant predictors for both short and long term change in HbA1c. This association was mainly seen in patients starting and remaining on low dose treatment (≤1000 mg/day). No significant associations were found for comorbidity and comedication. Achieving the target level was mainly associated with the baseline HbA1c level.

Conclusions: Few clinical factors can be used as predictors of glycaemic control in patients initiating metformin treatment. Our study suggests that prompt up-titration may be needed in patients who have a longer diabetes duration at treatment initiation.

Pregnancy outcomes after unintentional exposure to vildagliptin: an update

Paldánius P[1], Chu C[2], Bharali PJ[3]
[1]Novartis Pharma AG, Basel (Switzerland); [2]Novartis Pharmaceuticals Corporation, New Jersey (USA); [3]Novartis Healthcare Pvt Ltd, Hyderabad (India)

Aim(s) or purpose: Pregnancy and T2DM increasingly coexist and management of the latter becomes complicated due to the associated risk of adverse pregnancy outcomes. There is a scarcity of published data on the use of OADs in pregnant women with T2DM. Hence, most OADs, including DPP-4 inhibitors, carry warnings against use during pregnancy. Nonetheless, either accidental or unintentional uses of these drugs occur, especially during early pregnancy. We sought to update the available information evaluating the outcomes after unintentional maternal exposure to a DPP4 inhibitor, vildagliptin, in pregnant women with T2DM.

Design and method: The Novartis Safety Database was searched to identify all pregnancy cases (cut-off: 31 July 2015) exposed to vildagliptin (± metformin) with known outcomes. Records were retrieved with the system organ class of pregnancy, puerperium and perinatal conditions. Maternal and foetal outcomes were analysed and presented descriptively.

Results: Forty-four events were identified in 43 women aged 20-44 years: 14 from clinical studies, 8 from post-marketing safety studies, and 21 spontaneous reports. Approximately 21% had a history of abortion, ~70% of the cases resulted in live births, and 30% in abortions; no congenital anomalies or stillbirths were reported.

Pregnancy outcomes			
Maternal and neonatal outcomes		No. of pregnancies (n=44)	Reported pregnancies (%)
Live births (72.7%)	Normal new born/delivery	25	56.8
	Normal new born with pregnancy complications	3	6.8
	Premature delivery/labour/new born	4	9.1
Abortions (27.3%)	Spontaneous	8	18.2
	Missed/incomplete	3	6.8
	Abortion	1	2.3
Others	Stillbirths	0	0
	Congenital abnormalities	0	0

Conclusions: Although the numbers are low, this analysis provides preliminary data on pregnancy outcomes in T2DM after exposure to vildagliptin. There are no prospective studies of vildagliptin in pregnant women with T2DM. As with most OADs, vildagliptin is not recommended for use in pregnancy.

Relationship between diabetes duration and real-world effectiveness of second-line dual OAD therapy

Paldánius P[1], Brath H[2], Bader G[1], Mathieu C[3]
[1]Novartis Pharma AG, Basel (Switzerland); [2]Health Centre South Vienna (Austria); [3]Catholic University of Leuven, Leuven (Belgium)

Aim(s) or purpose: The progressive nature of T2DM often entails treatment intensification with multiple OADs in maintaining sustained glycaemic control over increasing diabetes duration. First-line monotherapy failure commonly leads to initiation of a second-line treatment with SUs or DPP-4 inhibitors. Using data from an observational study, EDGE, the effectiveness of second-line OADs was investigated over 12 months. Here, we aim to assess the impact of diabetes duration on the glucose-lowering effectiveness of SU-based regimens vs. DPP-4 inhibitor vildagliptin in patients with T2DM, in a real-life clinical setting.

Design and method: Impact of diabetes duration and baseline HbA1c on change in HbA1c from baseline at 12 months was assessed. Descriptive statistics and a linear regression model were used to analyse the effect of T2DM duration, BMI, and baseline HbA1c on glucose-lowering efficacy of SU and vildagliptin.

Results: The study comprised a total of 36,167 patients receiving dual therapy: 11,446 received SU-based and 24,721 received vildagliptin-based regimens. At baseline, mean T2DM duration (±SD) was 5.4±5.0 years vs 5.5±5.4 years and HbA1c 8.2±1.3% vs 8.1±1.4% for SU vs vildagliptin, respectively. The linear regression model was used to calculate the changes (Δ) in HbA1c from baseline (with adjusted r^2=0.52; p<0.0001). The change was directly proportional to baseline HbA1c (–0.68 per unit; 95% CI: –0.696, –0.681; p<0.0001), and inversely proportional to the disease duration (0.01 per year; 95% CI: 0.001, 0.013). The adjusted mean difference in HbA1c between groups was –0.21% (95% CI: –0.232, –0.191; p<0.0001), with loss of effect being five times greater with SU (adjusted marginal difference: 0.10; 95% CI: –0.121, –0.092) than with vildagliptin dual therapy.

Conclusions: In a real-life setting, duration of T2DM negatively affects the glucose-lowering capacity of OAD dual regimens. Greater reduction in HbA1c is achieved with vildagliptin compared to SUs at all time-points throughout the diabetes duration.

Relationship between smoking quantity and HbA1c on healthy adults

Dağcıoğlu BF[1], Keskin A[1], Kılıç T[1], Baydar A[2], Karataş I[2], Üstü Y[1]
[1]Yıldırım Beyazıt University, Faculty of Medicine, Department of Family Medicine, Ankara (Turkey); [2]Atatürk Training and Research Hospital, Family Medicine Clinic, Ankara (Turkey)

Aim(s) or purpose: Smoking is known as one of the most important avoidable causes of cardiovascular diseases and is strictly associated with complications in diabetic patients. We aimed to investigate whether it is associated with elevated HbA1c levels in healthy adults or not.

Design and method: Eighty healthy adult volunteers were included in the study. Patients who were non-smokers, diabetic, hypertensive, drug users or suffering from any other kind of chronic diseases were excluded from the study. All the participants were questioned for smoking quantity and duration (packs x year), and then HbA1c levels were studied from their venous blood samples. Bivariate correlation was used for the statistical analysis by using an SPSS v.20 package program.

Results: The median value of smoking quantity was 7 packs x year (min: 1, max: 30, IQR: 13) and median HbA1c value was %5.44 (min: 3.2, max: 6.3, IQR: 0.5). No significant correlation was found between smoking quantity (packs x year) and HbA1c levels (R=0.03, p=0.73).

Conclusions: Although smoking was found to be responsible for many diabetes mellitus complications in many studies, it doesn't appear to be associated with the levels of HbA1c in healthy adults.

Relationship between weight change and glycaemic control with once-weekly dulaglutide treatment in patients with type 2 diabetes

Umpierrez G[1], Pantalone K[2], Kwan A[3], Zimmermann A[4], Fernández L[3]
[1]Division of Endocrinology, Emory University School of Medicine, Atlanta (USA); [2]Department of Endocrinology, Cleveland Clinic, Cleveland (USA); [3]Lilly USA, LLC, Indiana (USA); [4]Eli Lilly and Company, Indiana (USA)

Aim(s) or purpose: Dulaglutide (DU), a once-weekly GLP-1 receptor agonist, was studied in the AWARD clinical trial program in adult patients with T2D and demonstrated significant HbA1c reduction and potential for weight loss. To

assess the relationship between weight change and glycaemic control in dulaglutide-treated patients, HbA1c and body weight data from the six trials were analysed.

Design and method: Data are reported per trial due to differences in designs, background therapies and baseline characteristics.

Results: Across the studies 87%-97% and 83%-95% of patients treated with dulaglutide 1.5 mg and 0.75 mg, respectively, demonstrated HbA1c reduction. Among the patients with HbA1c reduction, 55%-83% of patients receiving dulaglutide 1.5 mg experienced weight loss while 41%-79% in the dulaglutide 0.75 mg arm lost weight. Minimal correlation was observed between the changes in HbA1c and weight (range from -0.223 to 0.267). Baseline characteristics of gender, age, duration of diabetes, HbA1c, body weight and BMI did not correlate with different weight responses.

Conclusions: In summary, dulaglutide is an effective treatment option with both HbA1c reduction and potential weight loss observed across the type 2 diabetes treatment spectrum.

Significance of adherence to drug therapy in the severity of stenotic atherosclerotic lesions in patients with type 2 diabetes

Rybytska M[1], *Khimion L*[1]
[1]PL Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: To assess the severity of atherosclerosis in patients with type 2 diabetes according to their adherence to assigned drug therapy (compliance).

Design and method: We analysed the medical history of 112 patients with type 2 diabetes (52 women and 60 men, mean age 52.0 [47.0-58.0] years). Patients were divided into two groups: group 1) 35 patients with compliance above 80%; group 2) 77 patients with compliance less than 80%. Dynamics for the past two years of systolic blood pressure (SBP), blood biochemical parameters (total cholesterol [TC], C-reactive protein [CRP]) were analysed. Ultrasound examination of carotid arteries to determine intima-media thickness (IMT) and the presence of atherosclerotic plaques was performed. Statistical analysis was performed using IBM SPSS Statistics 20.

Results: The average IMT in group 2 (0.92 [0.79-1.02] mm) was significantly higher than in group 1 (0.78 [0.73-0.96] mm) ($p<0.05$). The average blood biochemical parameters of group 2 (CRP – 4.3 [2.7-6.0] mg/L, TC – 6.2 [5.4-7.1] mmol/L) were also significantly higher than in group 1 (CRP – 2.8 [1.5-4.3] mg/L, TC – 5.1 [4.6-6.1] mmol/L) ($p<0.05$). The average SBP in group 2 (140.3 [131.7-149.2] mm Hg) was significantly higher than in group 1 (131.6 [125.0-141.7] mm Hg) ($p<0.05$). In group 1 IMT > 0.9 mm was detected in 34.3% of patients, whereas in group 2 it was detected in 53.2%; atherosclerotic plaques were detected in 25.7% of patients in group 1 and in 58.4% in group 2.

Conclusions: Patients with poor adherence to assigned medication (compliance less than 80%) with type 2 diabetes have more pronounced atherosclerosis of the carotid arteries. Management of patients with type 2 diabetes requires better monitoring of performance of medical recommendations for the prevention of complications of atherosclerosis-dependent cardiovascular disease.

The effect of vitamin D3 supplementation on markers of glycaemia and oxidative stress in poorly-controlled T2DM

Alharbi H[1], *Aljohani N*[2], *Maswood M*[2], *Derbyshire E*[1], *Ahmed N*[1]
[1]Manchester Metropolitan University, Manchester (England); [2]King Fahad Medical City, Riyadh (Saudi Arabia)

Aim(s) or purpose: Diabetes mellitus type 2 (T2DM) pathogenesis has been associated with vitamin D deficiency which plays a role in impaired human insulin action. Around 88% of Saudi men have been categorised as vitamin D deficient (25(OH)D<50 nmol/L) and approximately 34% have diabetes. The purpose of this research is to investigate the effect of vitamin D_3 supplementation on biomarkers of glycaemia, oxidative stress and lipidaemia in Saudi males aged >18 years with poorly controlled T2DM.

Design and method: A double-blind, randomized, placebo-controlled, parallel trial was used to investigate 104 Saudi males with poorly-controlled T2DM, randomised to receive: 1) a placebo supplement; 2) 50 µg/day vitamin D_3 day; or 3) 100 µg/day vitamin D_3 as capsules matching in shape and size over a 16 week period. Fasting glucose, HbA_{1c}, fasting insulin, lipid profile, serum 25(OH)D, total antioxidant status were measured and skin advanced glycation end products (AGEs) were also measured using an AGE-reader.

Results: The mean average BMI was 31.43 for the first timepoint; HbA_{1C} 8.9%; AGEs 2.51; calcium 2.35 mmol/l and lipid profiles were cholesterol 4.52 mmol/l, HDL 0.97 mmol/l; and triglycerides 2.39 mmol/l.

Conclusions: It is expected that the findings will reveal the role of vitamin D_3 supplementation and whether it can reduce oxidative stress complications, tissue AGEs, lipidemia and insulin resistance in Saudi males with T2DM.

The relationship between smoking and diabetes

Olivart M[1], Rios D[1], Calderó M[1], Rodríguez K[1], Llovet R[1], Pena M[1]
[1]Mollerussa Health Care Centre, Catalan Health Institute, Lleida (Spain)

Aim(s) or purpose: Various studies place the prevalence of diabetes mellitus (DM-2) in the general Spanish population around 13%. However, smoking prevalence is estimated at about 33% of men and 21% of women. In 2014, the Center for Disease Control and Prevention (CDC), which is run by the America DPH, published a lengthy document ("The Health Consequences of Smoking-50 Years of Progress: A Report of the Surgeon General") which concluded: smokers have 30 to 40% more risk of developing diabetes than non-smokers. Smoking plays a key role in ischemic heart disease, atrial fibrillation or respiratory diseases such as COPD or lung tumours. The novel contribution of this great study was positioning tobacco as a causal risk factor for diabetes. Furthermore, this relationship seems to follow a dose-dependent pattern. The aim of our study is to determine the prevalence of smoking among people with diabetes.

Design and method: A cross-sectional study. The sample was obtained by selecting all patients aged over 18 in our region. The data were extracted by reviewing computerised medical records and recognised diagnoses of "type 2 diabetes", and "smoking" according to the International Classification of Diseases. The reference population included a total of 36,761 people from a semi-urban region.

Results: The prevalence of DM-2 in the sample was 8.3% CI 95% [8.03-8.6%]. The prevalence of smoking in the sample was 24% 95% [23.56-24.44%]. The prevalence of smoking among people with DM-2 was 51.64 %%, CI 95% [49.87-53.41%]. The prevalence of smoking among people without DM-2 was 21.5%, CI 95% [21.06-21.94%]. We used a chi-square test to evaluate the correlation between the smoking and type 2 diabetes variables. We obtained a value of 1395.51 with p-value < 0.01.

Conclusions: The results of our work allow us to affirm that there are significant differences in the distribution of smoking in the DM2 group compared to the non-DM2 group.

The remission of depressive symptoms improves glycated haemoglobin in type 2 diabetes in general practice

Passamonti M[1], Medea G[2], Pigni M[1], Testolin E[1], Mauro D[1], Puricelli S[1]
[1]The Italian College of General Practitioners, Fagnano Olana-Varese (Italy); [2]The Italian College of General Practitioners, Desenzeno-Brescia (Italy)

Aim(s) or purpose: Comorbid type 2 diabetes (T2DM) and depression (DEP) represent a major clinical challenge as the outcomes of each condition are worsened by the presence of the other. Our retrospective study had the aim of evaluating the variation of glycated haemoglobin (A1c) in T2DM with DEP, before and after anti-depressant drug that achieved the remission of depressive symptoms (DSs).

Design and method: Our practice has 8,019 patients. 537 (6.7%) had T2DM and 713 (8.9%) DEP. We followed the ADA criteria for the diagnosis of T2DM, while the Patient Health Questionnaire measured DSs (screening instruments, 78% sensitivity, 83% specificity). We recruited the T2DM with DEP that met all the following criteria: a-T2DM with at least three years' management in our database: b-Value of A1c in the period with DEP; c-Value of A1c, after at least four months of treatment, in patients with complete remission of DSs.

Results: Thirty-two T2DM with DEP met all the inclusion criteria (M/F 8/24 - mean age$\pm$SD: 72.03 $\pm$ 9.65 y.; duration of T2DM 16.66 $\pm$ 8.03 y.). During the study, the type of anti-hyperglycaemic treatment was not changed (71.8% metformin, 34.4% sulfonylureas,15.6% glinides, 15.6% pioglitazone, 12.5% acarbose, 3.1% DPP-IV inhibitor, 28.1% long-acting analogue insulin, 28.1% rapid-acting analogues). The antidepressant treatment was: 56.2% sertraline, 15.6% citalopram, 9.4% paroxetine, 9.4% escitalopram, 6.2% venlafaxine and 3.1% fluoxetine. The mean$\pm$SD of glycated haemoglobin decreased from 7.8$\pm$1.75% to 6.8$\pm$1.60% after undergoing the remission of DSs. This difference reached the statistical significance (p=0.02).

Conclusions: We believe that general practitioners must take care of the problem of co-presence of DEP in T2DM patients in order to achieve a screening questionnaire suitable for its recognition and prescribe appropriate treatment. The 1% reduction of A1c was not only statistically significant, but also clinically relevant if we think that most diabetes medications we use have an equally effective reduction.

Type 2 diabetes control and its impact on the development and progression of complications

Tkachenko V[1]
[1]Shupyk National Medical Academy of Postgraduate Education, Kiev (Ukraine)

Aim(s) or purpose: The assessment of diabetes control, its impact on the development of complications is relevant in modern terms, especially during new clinical protocol implementation. The aim is to assess type 2 diabetes control and its impact on the development and progression of diabetes complications in patients in the Kyiv region during the implementation of new clinical protocol (order of Health Ministry of Ukraine, 21 December 2012, N° 1118).

Design and method: 173 patients with type 2 diabetes (aged 55,13 ± 0.61years, duration of diabetes 7.38 ± 0.47years, 64 from rural areas, 109 urban), took part in a survey on risk factors, diabetes self-monitoring, adherence to application of preventive measures and treatment, using a questionnaire from the EUROASPIRE IV study. The quality indicators recommended by new clinical protocol for annual monitoring were analysed. Statistical analysis was performed using Excel 2007, SPSS.

Results: During 2012-2013, 90.8% of patients carried out glucose self-monitoring. But a low percentage of patients were informed about risk factors: 71.1% took assigned antihypertensive drugs; 45.1% were on lipid-lowering therapy; 57.8% never missed medication; and 42.2% didn't change doses by themselves. The parameters of diabetes control were significantly higher than recommended target levels: BMI (32.22 ± 0.48, $p<0.05$), blood glucose (8.65±0.22 mmol/l, $p<0.01$), HbA1s (9.0 ± 0.18%, $p<0.01$), total cholesterol (5.60 ± 0.13 mmol/l), TG (1.74 ± 0.15, $p<0.01$), and LDL (2.71 ± 0.18, $p<0.01$). The quality of diabetes care was insufficient regardless of the specialist: endocrinologist or primary care physician. A complex study of patients in 2014 showed the presence of undiagnosed micro- and macrovascular complications of diabetes, a large number of non-controlled risk factors, insufficient preventive measures, low compliance of patients to their application, indicating the need to strengthen preventive actions by doctors.

Conclusions: The annual monitoring of indicators and the implementation of preventive measures in type 2 diabetes patients aren't implemented in full at primary and secondary levels in the early stage of protocol implementation. This is something that needs improvement.

Type 2 diabetes mellitus: quality of care in primary care and concerns about clinical heterogeneity

Álvarez-Guisasola F[1], *Bravo-Merino L*[1], *Maroto-Salmón R*[1], *García-Velasco G*[1]
[1]La Calzada Primary Care Centre, Gijón (Spain)

Aim(s) or purpose: Clinical practice variation is the different behaviour of practitioners faced with identical clinical conditions. In diabetes, the fulfilment of the goals of glycaemic control as measured by glycosylated haemoglobin (HbA1c) allows comparison among professionals in a similar working environment. Our aim was to determine the degree of clinical variability, based on the glycemic control in type 2 diabetes (T2DM) followed-up in primary care and to compare current data with a previous study conducted in 2008.

Design and method: The T2DM population was analysed in two primary care centres (CS1 and CS2) with a population aged over 14 of 14,324 and 15,591 inhabitants, respectively, within the same health district. All patients with T2DM (n = 2,792) were included. The demographic variables, date and value of the last HbA1c and current treatment were retrieved from clinical records. Current data is compared with a previous similar analysis.

Results: Prevalence of T2DM in patients over 35 years was 8.80% and 9.95% respectively, with 25% of them being treated with insulin. Last year HbA1c records were available for 74.10% and 85.20%. Regarding the degree of adequate glycaemic control (HbA1c <7%), 59.2% and 69% were the figures ($p<0.05$). If we assume that missing data from T2DM without A1c being performed were poorly controlled, the figures will change to 46% and 64% respectively ($p<0.05$). When metabolic control is analysed on an individual basis, differences range between 89% and 15% for patients with A1c records and between 83.6% and 12.7% when the whole diabetes population was computed. Data from comparisons between year 2008 and 2015 will be showed.

Conclusions: Despite an acceptable overall glycaemic control, when differences are analysed on an GP- individual basis, they are not acceptable. Our efforts must focus on reducing the heterogeneity of clinical practice and investigating the underlying causes in order to improve health outcomes in people with diabetes.

Use of oral antidiabetic drugs in elderly people with type 2 diabetes according to renal function. Discrepancies among consensus, guidelines and clinical practice

Valladares I[1], Barrot J[1], López C[2], Rodríguez A[3]
[1]Catalan Health Institute, Salt Primary Health Care Centre, Girona (Spain); [2]Catalan Health Institute, Sarrià de Ter Primary Health Care Centre, Girona (Spain); [3]Catalan Health Institute, Anglès Primary Health Care Centre, Girona (Spain)

Aim(s) or purpose: The increase in the prevalence of people developing diabetes has had a major impact on the development of diabetic kidney disease (DKD). Dose adjustments are required for many hypoglycaemic agents when used in people with DKD. Thus, greater care to avoid hypoglycaemia and less stringent A1C targets of treatment are recommended. We analyse the discrepancies that exist in the prescription of oral antidiabetic drugs (ADOs) in patients with T2DM and the lack of guidelines concerning their prescription in the different stages of renal failure.

Design and method: A cross-sectional study using data from a population-based electronic database. We retrieved data from 4,521 patients ≥ 75 years diagnosed with T2DM, attended during 2015 in primary care centres in Girona, Spain. We studied patients treated with ADOs and a glomerular filtration rate (GFR) <60ml/min/1.73m2.

Results: Of 4,521 patients ≥ 75 years old, 55% were female. The 38% had moderate or severe deterioration of renal function, 3% continued into a GFR < 30 ml/min. The GFR declined with advancing age. In our study, we observed lower HbA1c levels associated with worse renal function. The most frequently prescribed ADO was metformin (2,622 patients) followed by sulfonylureas (891), IDPP4 (441) and repaglinide (355). Patients with a GFR < 30 ml/min were prescribed repaglinide (42,4%), IDPP4 (30,3%), metformin (16,7%) and SU (7,6%) .

Conclusions: The presence of DKD is an important limitation for using the majority of oral antidiabetic drugs. However, recommended ADOs differ between guidelines and clinical practice. Substantial evidence suggests that the recommendations for the use of IDPP4 and sulfonylureas should be modified. This is especially relevant in the elderly where risk of hypoglycaemia is a particular problem.

Easing the transition of T2DM patients to 1st injectable therapy

29th April 2016, Barcelona, Spain
13:00 - 14:30 / Room: MR10

Lilly Diabetes Symposium at the

14th International Primary Care Diabetes Europe Conference

Friday - 29th April 2016

13:00	**Welcome and introduction**	*Johan Wens*, Belgium*
13:15	**Understanding the treatment transition in T2DM**	*Kamlesh Khunti, UK*
13:35	**Clinical Experience with weekly GLP-1 RA**	*Francesco Giorgino, Italy*
14:20	**Closing remarks and take home message**	*Johan Wens*, Belgium*

Learning Objectives:

By the end of the Symposium, participants will be able to:

- Discuss the importance of individualizing therapy for T2DM patients in the context of existing clinical practice guidelines
- Understand the challenges HCPs and patients are facing when they need to start injectable therapy
- Have a good understanding of different GLP-1 RA therapy options

(Speaker in contracting process)*

PCDE primary care diabetes europe

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Industry-sponsored Satellite Symposia

■ LILLY • LUNCH INDUSTRY-SPONSORED SATELLITE SYMPOSIUM

Easing the transition of T2DM patients to 1st injectable therapy

Date Friday, 29th April
Time 13.00 - 14.30 *(lunch is included)*
Room Symposia Meeting Room (MR 10)

Agenda

13:00 Welcome and introduction

13:15 Understanding the treatment transition in T2DM

13:35 Clinical experience with weekly GLP-1 RA

14:20 Closing remarks and take home message

■ NOVO NORDISK • AFTERNOON INDUSTRY-SPONSORED SATELLITE SYMPOSIUM

Intensifying basal insulin with confidence for primary care

Date Friday, 29th April
Time 17.00 - 19.00 *(dinner box service is included)*
Room Symposia Meeting Room (MR 10)

Agenda

17.00 – 17.30
Dinner Box Service

17.30 – 17.45 (15 minutes)
Introduction and case presentation. Audience Polling: What would you choose next?
Petra-Maria Schumm-Draeger, MD, PhD (Program Chair)

17.45 – 18.05 (20 minutes)
Case progression with increased insulin titration
Kamlesh Khunti, PhD, MD, FRCGP, FRCP

18.05 – 18.25 (20 minutes)
Case progression with addition of a co-formulation
Edward Franek, MD, PhD

18.25 – 18.45 (20 minutes)
Case progression with addition of a GLP-1 analogue
Filip K. Knop, MD, PhD

18.45 – 19.00 (15 minutes)
Audience polling: Which treatment is best? Questions and answers
All faculty

■ ROCHE DIAGNOSTICS • BREAKFAST INDUSTRY-SPONSORED SATELLITE SYMPOSIUM (WORKSHOP)

Dealing with therapeutic data - A structured approach for diabetes treatment

Date Saturday, 30th April
Time 07.45 - 08.45 *(breakfast is included)*
Room Symposia Meeting Room (MR 07 + 08)

Objectives

What to expect:
• How you can benefit from a structured feedback loop in clinical practice.
• Learn about the importance of structured data collection and what it means for your patients with diabetes.
• Improving the consultation with data analysis.
• See how eHealth can support personalized diabetes management.

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(Listed in alphabetical order)

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ECD - European Coalition for Diabetes

EGPRN - European General Practice Research Network

EPCCS - European Primary Care Cardiovascular Society

EURADIA - Alliance for European Diabetes Research

Fundación redGDPS – Network of Diabetes Study Groups in Primary Health Care

GedapS-CAMFiC - Primary Health Care Diabetes Study Group of the Catalan Society of Family and Community Medicine

IDF Europe - International Diabetes Federation Europe

Israeli Association of Family Physicians

Primary Care Diabetes Society

SEMERGEN - Spanish Society of Primary Care Physicians

semFYC – Spanish Society of Family and Community Medicine

SEMG – Spanish Society of General and Family Physicians

TAHEV - Turkish Family Medicine Foundation

TAHUD - Turkish Association of Family Physicians

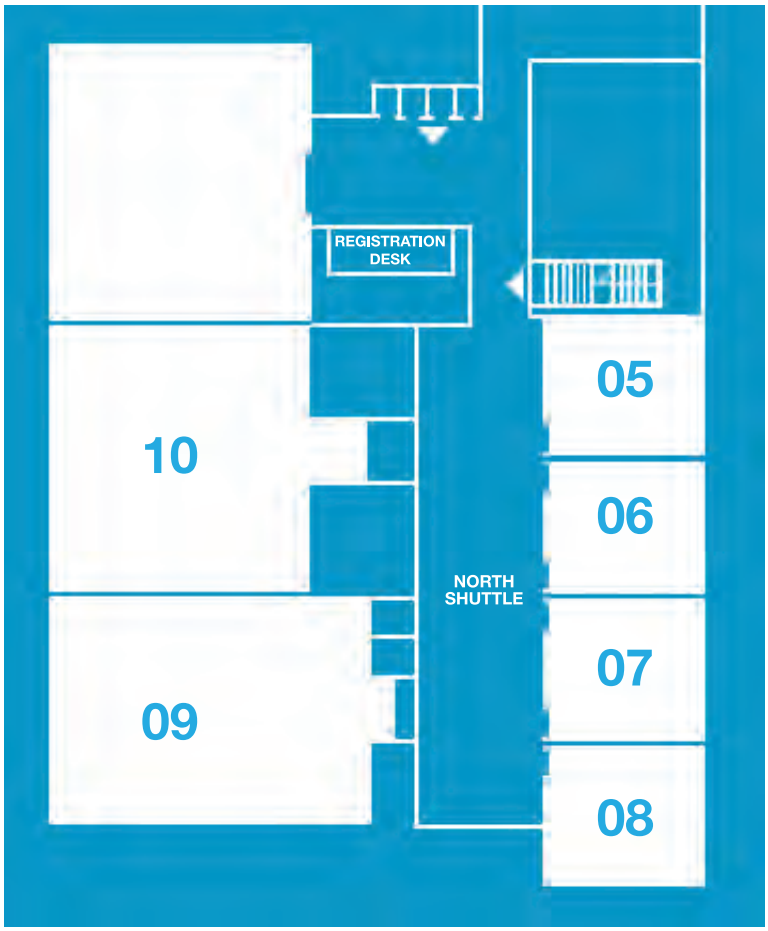
WONCA - World Organization of Family Doctors

Conference Venue

Barceló Sants Hotel

Pl. dels Països Catalans, s/n
08014 Barcelona
www.barcelo.com

First floor



Plenary Room:	MR 09
Satellite Symposia Rooms:	MR 10
	MR 07+08
Poster Area:	MR 05+06
Exhibition Area:	Foyer (North shuttle)
Coffee Breaks:	Foyer (North shuttle)
Lunch Area:	Oxygen Restaurant (first floor)

Index of Speakers and Abstracts Authors

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Conference Secretariat

CONGRESOS Y EDICIONES SEMFYC

Carrer del Pi, 11, 2ª pl., of. 13 · 08002 Barcelona
Tel. (+34) 93 317 71 29 · Fax (+34) 93 318 69 02
congresos@semfyc.es