

**International Symposium on:
NEW TRENDS IN DIABETES
AND OBESITY TREATMENT**
Taormina (Italy), October 06-08, 2016
Highlights

Introduction



Prof. Garofalo and Prof. Vigneri, Chairmen of the Symposium, opened the congress, by highlighting the scientific level of the meeting. They presented the main topics of the symposium starting from the new insights on the therapeutic approach of the diabetic patients. Prof. Vigneri highlighted that we are at the edge of a new era in diabetes and related diseases treatment. This meeting saw the participation of

many top researchers in diabetes coming from all the world, presenting some data, even unpublished, taken from clinical trials and basic science researches.

To follow the presentations of this congress, click on the link below:

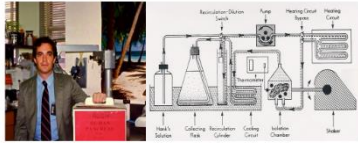
<http://www.fondazione-menarini.it/Archivio-Eventi/2016/NEW-TRENDS-IN-DIABETES-AND-OBESITY-TREATMENT/Materiale-Multimediale> ... and, after having logged in, enter in the multimedia area.

Cellular Therapy and Regenerative Medicine in Diabetes

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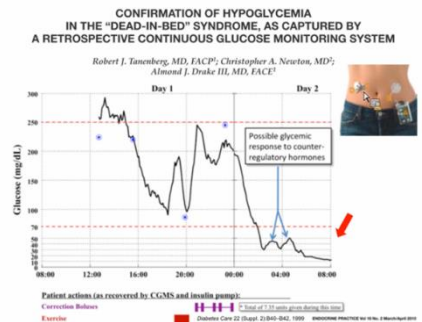
Automated Method for Isolation of Human Pancreatic Islets

CAMILLO RICORDI, PAUL E. LACY, EDWARD H. FINKE, BARBARA J. OLACK, AND DAVID W. SCHARFF



National Institute of Health. The speaker talked about BioHub, a multi-functional platform modulating the local environment and presented the data of clinical studies performed by applying the engineering technologies in islet transplanted patients. Prof. Ricordi spoke also about the role of immunomodulation in promoting cell survival and function, selective stimulation of regulatory cells and co-transplantation of immunoregulatory cells. In the last part of his presentation Prof. Ricardi highlighted that in order to resolve the translational

Prof. Ricordi from Miami (USA), in his opening lecture spoke about Diabetes, Cellular Therapy and regenerative medicine with a special focus on Type 1 diabetic patients and the hypoglycaemic status. Prof. Ricordi presented very interesting data on the cell transplantation technique developed through clinical trials thanks to the effort of the Clinical Islet Transplantation Consortium, an organization driven by the National Institute of Health. The speaker talked about BioHub, a multi-functional platform modulating the local environment and presented the data of clinical studies performed by applying the engineering technologies in islet transplanted patients. Prof. Ricordi spoke also about the role of immunomodulation in promoting cell survival and function, selective stimulation of regulatory cells and co-transplantation of immunoregulatory cells. In the last part of his presentation Prof. Ricardi highlighted that in order to resolve the translational



CellRM 2016; 4 (2): e1810

Hypes, hopes and translational challenges on the path to cures

C. Ricordi, F.C. Brunacci

Diabetes Research Institute, University of Miami, Miami, FL, USA
Department of Surgery, David Geffen School of Medicine at UCLA, Los Angeles CA, USA



“valley of death” it is mandatory to modify the health system putting the patients at the core.

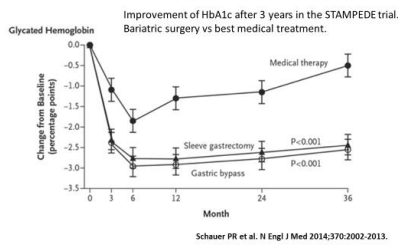
- What are the eligible patients for the islet transplantation?
- What are the main results of the CIT-07 study?
- Is it necessary immunosuppression in patients treated with islet transplantation procedures?
- What BioHub is?
- What is the role of Immunomodulation in promoting cell survival and function?
- What are the clinical centres involved in the DRI federation?

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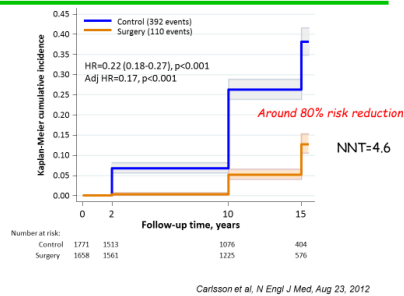
Bariatric Surgery and Diabetes.

Bariatric surgery improves glycemic status in obese patients with diabetes



obese patients with diabetes. Prof. Carlsson spoke about the effect of bariatric surgery on body weight loss, diabetes remission, micro and macrovascular complications.

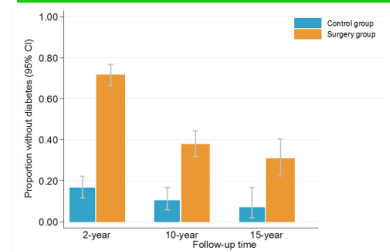
Bariatric surgery strongly prevents diabetes



that do not develop diabetes.

Prof. Carlsson from Gothenburg (Sweden), talked about this topic, highlighting the importance of this therapeutic procedure in obese diabetic patients. The speaker presented unpublished data taken by one clinical trial, the so called SOS study, that is a prospective, controlled interventional trial comparing bariatric surgery to usual care in obese patients with diabetes. Prof. Carlsson spoke about the effect of bariatric surgery on body weight loss, diabetes remission, micro and macrovascular complications. Moreover, the speaker highlighted that bariatric surgery is able to strongly prevent diabetes in obese patients. Prof. Carlsson concluded her talk, highlighting that bariatric surgery has positive effects in patients with prediabetes, that is associated with long-term microvascular complications even in those patients

Diabetes remission in SOS patients with diabetes at baseline



Sjöström, Peltonen, ... Carlsson. *JAMA*, June 11, 2014

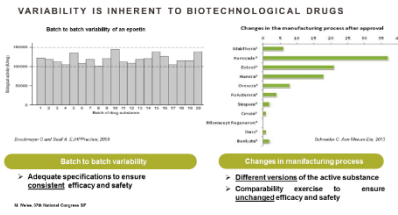
- What are the main result of bariatric surgery on glycaemic status in obese patients with diabetes?
- What are the main remaining questions about bariatric surgery and diabetes?
- How early should patients be treated by applying bariatric surgery procedures?
- What is the effect of bariatric surgery on fasting blood glucose?
- What is the effect of baseline glucose status on long term health-care costs?
- What are the main results of bariatric surgery on diabetes?

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The concept of biosimilar drugs: Focus on diabetes

Prof. Canonico from Novara (I), spoke about biosimilar drugs and their effect on diabetic patients. The speaker went deeper



Canonico pointed to some topics like regulatory requirements and comparability exercise for biosimilars, their pharmacovigilance

Overview of regulatory requirements for biosimilars (1)

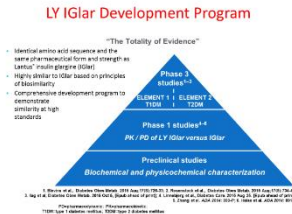
FDA **EU**

Regulatory requirements common to the US and EU that must be satisfied for a biosimilar to be approved:^{1,2}

- In vitro and in vivo non-clinical characteristics similar to the reference product
- PK and PD characteristics similar to the reference product
- No clinically meaningful differences in immunogenicity or adverse event profile from the reference product
- No clinically meaningful differences in clinical efficacy³

1. FDA, Center for Drug Evaluation and Research, Center for Biologics Evaluation and Research, Guidance for Industry: Biosimilarity: A Guide to the Process, 2015. 2. EMA, European Medicines Agency, Guideline on Similar Biological Medicines, 2010. 3. EMA, European Medicines Agency, Guideline on Similar Biological Medicines, 2010.

and comparability exercise for biosimilars, their pharmacovigilance and safety profiles, the differences in terminology between switching, interchanging and substitution. Finally, the speaker presented data taken from in vitro and PK/PD studies performed with LY IGLar in comparison with IGLar, its referral biological drug.

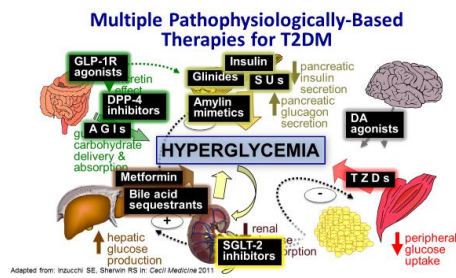


- What are the main characteristics of biosimilars?
- What is the definition of biosimilar?
- What are the main regulatory requirements for biosimilars?
- What is the comparability exercise?
- What are the main PK/PD characteristics of LY IGLar?
- What are the results of the efficacy and safety studies comparing LY IGLar versus IGLar?
- What's about Immunogenicity studies with LY IGLar compared to IGLar?

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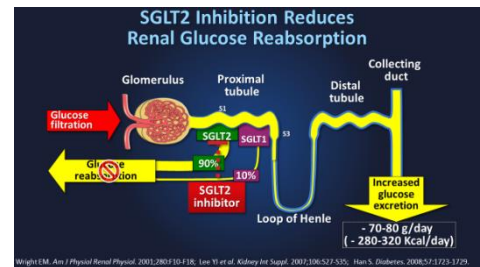
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SGLT2 Inhibitors and Cardiovascular Risk



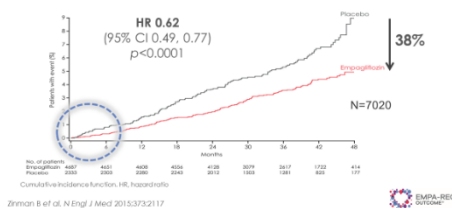
Prof. Inzucchi from New Haven (USA), spoke about this new class of drugs and their effect on diabetic patients in terms of Cardiovascular Risk reduction. At the beginning of his presentation, the speaker pointed to the main effects of the drugs approved for type 2 diabetes treatment before the 2015, in terms of CV risk reduction. Only

insulin, metformin and TZDs presented CV risk reduction results in some clinical trials. Prof. Inzucchi spent the main part of his speech by presenting data about the effects of the SGLT2 inhibitors in terms of CV risk reduction in Type 2 diabetic patients. The results of the major clinical



on SGLT2 Inhibitors compared to placebo are very interesting in terms of CV risk reduction, CV mortality, All-cause mortality and HF hospitalization. Another very interesting topic the speaker pointed out concerned the early onset of these effects, within the first 6 months of treatment. Prof. Inzucchi concluded his presentation highlighting the role of these new drugs in driving CV risk reduction in patients affected by type 2 Diabetes.

CV death



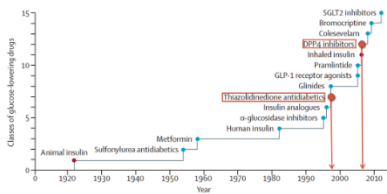
- What are the main results of the Type 2 DM therapies on the CV system?
- What is the main mechanism of action of the SGLT2?
- What are the SGLT2 Inhibitors currently available on the market?
- What are the main effects of the SGLT2 Inhibitors on HbA1c in comparison with placebo?
- What is the effect on CV mortality, All-cause mortality and HF hospitalization obtained by the SGLT2 Inhibitors in the EMPA-REG study compared to placebo?

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Novelties on Gliptins and Glitazones

Drugs to Treat Type 2 Diabetes



Adapted from Kahn S, Cooper M, Del Prato S. *Lancet* 2014; 383: 1020-40

spent by Prof. Del Prato in presenting data given from some clinical trials, on the effects of DPP4 inhibitors in terms of

Prof Del Prato from Pisa (I), talked about these classes of drugs, highlighting the presence of new data about the treatment of type 2 diabetic patients. The speaker highlighted that the onset of new drugs for diabetic patients started at the end of the 90th, with the introduction on the market of the thiazolidinedione antidiabetics drugs. The main part of his presentation was

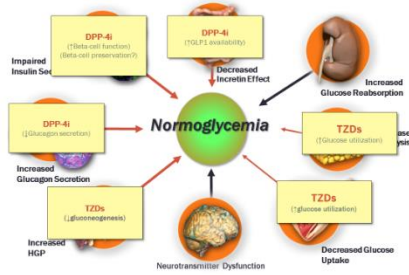
Risk of Hospitalization for Heart Failure in T2DM Patients Newly Treated with DPP-4 Inhibitors or other Oral Glucose-lowering Medications

	Before propensity matching		After propensity matching	
	HR (95% CI)	P	HR (95% CI)	P
Sulfonylureas (reference)	1.000		1.000	
Glitazones	0.926 (0.807-1.063)	0.277	0.777 (0.635-0.950)	0.014
DPP4-inhibitors	0.751 (0.630-0.895)	0.001	0.642 (0.510-0.808)	>0.001

Fabrizio G et al. *Eur Heart J* 2015; 36: 2454-2462

efficacy and safety in the treatment of Type 2 diabetic patients. The speaker presented also data on the effects of DPP4-Inhibitors on the renal functions in diabetic patients affected by kidney disease at an early stage. In the last part of his talk, Prof. Del Prato presented data about the synergic effects on the CV risk reduction of DPP4-Inhibitors and Pioglitazone when administered to type 2 diabetic patients.

Pathogenic Complexity of Type 2 Diabetes



- What is the risk of hospitalization for HF in diabetic patients treated with DPP4 Inhibitors?
- What is the effect of the DPP4-Inhibitors on the renal function in elderly diabetic patients?
- What are the potential interactions between Pioglitazone and DPP4-Inhibitors?
- What is the main effect on the stroke rate in patients affected by Type 2 Diabetes in the PROactive study?
- What are the potential interactions between Pioglitazone and SGLT2-Inhibitors?
- What is the role of Pioglitazone and SGLT2-In in Type 2 diabetic patients, from the speaker's pathogenic point of view?

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GLP-1 Receptor Agonists: an Update.

The GLP-1 Receptor Agonist (RA) Class

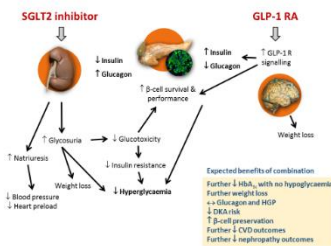
Properties

- Significant glycaemic improvement
- Low hypoglycaemia risk, except in combination with SU or insulin
- Weight reduction, usually dose-dependent and molecule-related
- Reduced (systolic) blood pressure
- Gastrointestinal side effects
- Potential effects on beta-cell survival, CV outcomes, neurodegeneration

CV outcomes: GLP-1 (glucagon-like peptide-1) receptor agonists

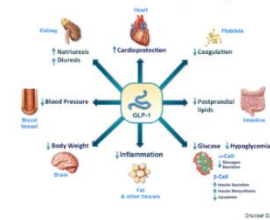
BYETTA Prescribing Information. Accessed 25 April 2016. Виктоза Prescribing Information. 25 April 2016. Lixumia Prescribing Information. Accessed 25 April 2016. Lyumora Summary of product characteristics. Accessed 25 April 2016. Tralokinor Prescribing Information. Summary of product characteristics. Accessed 25 April 2016. Hespero. Accessed 25 April 2016. Diabetes 2012; 6: 728-742. Neuman JJ. J Am Pharm Assoc 2008; 48: 916-26. White J. J Am Pharm Assoc 2009; 49: 830-40. Buse JB, et al. J Clin Endocrinol Metab 2011; 93: 1849-702. Nave JJ. Nat Rev Endocrinol 2012; 8: 728-742.

the main part of his talk the



Prof. Giorgino from Bari (I), presented data about the GLP-1 receptors agonists. The speaker started his presentation addressing to the main mechanisms of actions of GLP-1 at a systemic level in the human body. Prof. Giorgino highlighted the effects of these drugs other than the hypoglycemic ones, more in particular on the blood pressure levels, the beta-cell survivals and CV outcomes. In speaker presented data taken by some clinical trials on type 2 diabetic patients treated with GLP-1 receptor agonists compared to insulin or placebo. Prof. Giorgino presented even data about the effects of the GLP-1 RA in association with insulin in Type 2 diabetic patients. The speaker finally presented data about another association, the one between GLP-1 RAs and SGLT2 Inhibitors about the effect on CVD and nephropathy outcomes.

GLP-1 Effects on CV Risk through Direct and Indirect Actions in Multiple Organs



- What are the main properties of the GLP-1 Receptors Agonist drugs?
- What's about the effect on HbA1c and weight reduction of the administration of Dulaglutide compared to Insulin?
- What are the results of the LEADER Study in term of Primary outcome?
- What are the main effects of GLP-1 RA vs. basal Insulin?
- What are the main effects of the association between Insulin and GLP-1 RA?
- What are the main effects of the association between GLP-1 RAs and SGLT2 inhibitors?
- What are the main needs for switching diabetic patients to the GLP-1 RA combination therapy?

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New Technologies for the Treatment of the Young Diabetic Patient.



Prof. Iafusco from Naples (I) talked about the new technologies to be applied in the treatment of the Type 1 diabetic patients. The speaker started his talk by presenting some slides taken from the past protocols of Type 1 diabetes treatments. Technology is dramatically improved in these years and these improvements

changed also the therapeutic approach of these patients by applying new devices characterized by smaller size and best performing. Prof. Iafusco talked about the main technological applications in diet, insulin and physical



activity control by using smartphones and apps for the main calculations. The speaker highlighted the role played by the parents in developing new apps for a better management of the disease of their children. In the last part of his presentation Prof. Iafusco presented very interesting data on the so called PEDerPan project, characterized by the application of an artificial pancreas in children affected by Type 1 diabetes for a better

control of their glycaemic values.

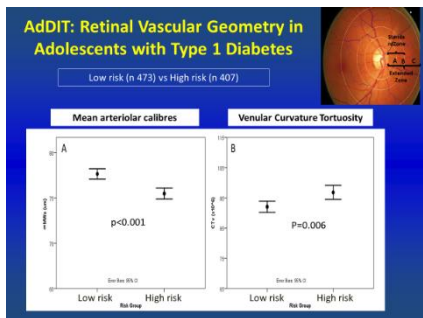
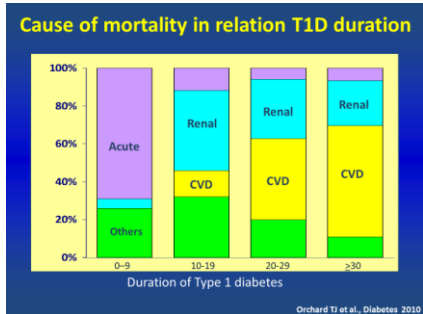


- What are the main characteristics of the new devices to be applied in Type 1 diabetic patients?
- Why is CHO counting important in improving glycaemic control in type 1 diabetic patients?
- What's about the total Artificial Pancreas?
- What are the key points of the PEDerPan project?
- What are the main results of the PEDerPan?

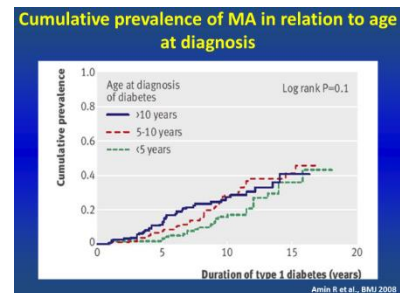
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Early Detection and Prevention of Complications in Adolescents with Type 1 Diabetes.



Prof. Dunger from Cambridge (UK) spoke about the early detection and prevention of complications in adolescents with Type 1 Diabetes. The speaker started his talk by presenting historical data on the expectation of life in patients with and without diabetes, a very dramatically change from 1971 to 2016. The speaker spoke about the natural history of microalbuminuria, a major complication present in these patients and the link with DN and CVD. In the main part of his presentation, Prof. Dunger talked about the main strategies for preventing complications in young patients affected by Type 1 diabetes. Finally, the speaker presented interesting data taken from the Adolescent Type 1 Diabetes Intervention Trial.



- What are the main causes of mortality in patients with Type 1 Diabetes?
- What are the main results of the Oxford Regional Prospective Study?
- Why is MA a marker of a generalized endotheliopathy?
- What are the main Genetic factors that induce the onset of Type 1 Diabetes during the childhood?
- What are the main strategies for Type 1 diabetes prevention?
- What are the main results of the AdDI trial?
- What are the future challenges of the AdDI trial?

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Toward an Optimal Clinical Management of Transition Age: Why, When and How.



Prof. Garofalo, Chairman of the Congress, spoke about this topic by presenting data on the definition of Transition, Adolescents and Young People. The speaker highlighted that the transition phase is important despite the escape of adolescents from their physicians, typical of this age. Prof. Garofalo in conclusion of his talk, introduced 5 speakers

involved in this topic: how to manage the transition phase from childhood to adult care system? The involved speakers were Prof. Bernasconi from Modena, Prof. Brancato from Palermo, Prof. Albanese from London, Prof. Cerutti from Turin and Prof. De Filippo from Paris.



- What are the main educational aims?
- What is the definition of Transition?
- What are the main adolescence subgroups?
- What are the most common causes of chronic illness in adolescents?
- What are the Paediatric Conditions requiring adult handover?

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Toward an Optimal Clinical Management of Transition Age: Why, When and How.

Management of adults with paediatric-onset chronic liver disease: strategies issues for transition care? Paolo Vignati, Giuseppe Mangano, Silvana Lenti, Claudio Mandor, Mariella Proietti Journal of Hepatology 48 (2008) 89-91

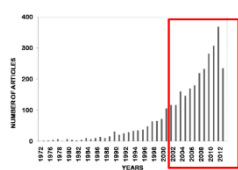


Fig. 1. Increasing number of publications on the topic of 'transition to adult care' in recent decades. Source: pubmed.gov (15 September 2013). Journal Title: Trends in Clinical Management of Transition Age (1972-2012) and How

HOT POINTS

- 1) in and out patients : where ?
- 2) Education
- 3) Obesity

Prof. Bernasconi from Modena (I), spoke about this topic by presenting data from the literature. In these last years there is an increasing number of publications on the topic of transition to adult care, the speaker pointed out. Despite this effort in growing the number of publications, the goals defined in 2002 have not been reached till now. The speaker highlighted that the main problems are linked with the typical differences between paediatrics and other specialists for adult patients. Prof. Bernasconi presented also data driven by his personal experience through a survey performed in 2012 in the city of Modena.

Surveys 2007 and 2012

S. Bernasconi et al.



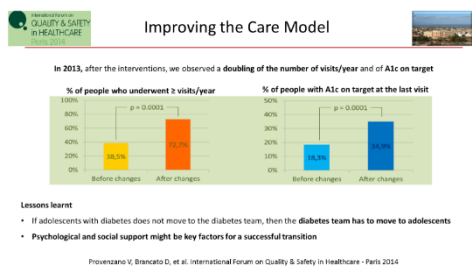
Journal Title: Trends in Clinical Management of Transition Age (1972-2012) and How

- How many articles have been published from 2002 to 2012 about the transition to adult life?
- What are the main results of the Survey performed in 2012 by Prof. Bernasconi in the city of Modena?
- What are the hot points in the management of transition age?
- What's about obesity in transition age?
- What's about education in transition age?

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Toward an Optimal Clinical Management of Transition Age: Why, When and How: our experience.



Prof. Brancato from Palermo (I), presented data about the experience driven by his clinical center in transition management of type 1 diabetic patients. The speaker talked about the care model for children and adolescents applied in his hospital and the vision about the use of technology developed by his team of researchers. All these topics have

Our contribution – Our experience

- **Our care model for children and adolescents**
 - A clinical audit to improve the care model
 - The single team approach
- **Our vision on the use of technology**
 - The early use of CGM
 - The early use of CSI

Our contribution – Our experience – Key messages

- Psychological and social support might be key factors for a successful transition
- During transition no a single approach fits for all the health context, and the approach should be adapted to the available resources and to the local context
- Technology might offer unexplored solutions to face with the special diagnostic and therapeutic problems of the transition
- **Most of all, we believe that we need an accessible, experienced, motivated and friendly diabetes team**



been developed starting from specific experiences revised at the light of studies designed for testing the effectiveness of the applied model. Prof. Brancato presented the main data produced by these studies. The speaker concluded his talk, by highlighting the need for implementing an accessible, well experienced, motivated and friendly diabetes team in order to drive an optimal clinical management of transition age.

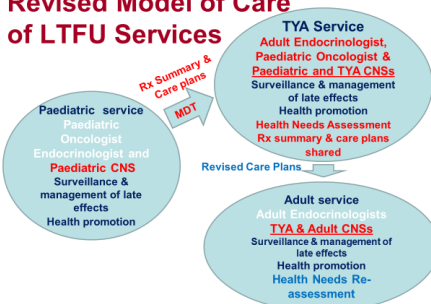
- How many children have been driven from paediatric to adult care systems from October 2015 to September 2016 in the clinical center of the speaker?
- What are the key point of the care model for children and adolescents presented by Prof. Brancato?
- What is the vision of the speaker in using technology in transition phase?

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Transition for Children Cancer Survivors.

Revised Model of Care of LTFU Services



Prof. Albanese from London (UK) spoke about this topic by presenting data on the models of care applied in these patients. The speaker spoke about her experience performed from the 90th to our time in the long term follow-up services at Royal Marsden NHS Foundation Hospital in London. Prof. Albanese spoke about the methods of evaluation applied for these services, the identification of the required changes, the introduction of “Ready Steady Go” procedure as a framework for transition, with the intention to assess the knowledge of the condition of these children, to understand and support the concept of transition. This procedure helps children and parents in performing the transition process, the speaker pointed out.

A framework for transition:

Ready Steady Go

- To assess the knowledge of their condition, treatment and who's who in their healthcare team
- To support the development of self-advocacy (speaking for yourself)
- To understand what is a healthy lifestyle
- To review educational and vocational issues and the impact of the disease on them
- To identify psychosocial issues and how to deal with them
- To understand the concept of transition

Transition Programme

What?

- A purposeful, planned process of education and support for adolescents as they move from Paediatric to Adult Services

Why?

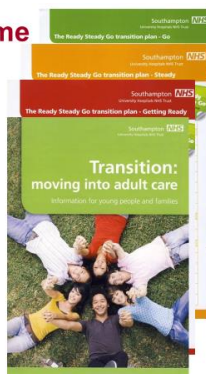
- To reduce morbidity and mortality
- To improve socio-economic achievements and independence

Who?

- Young people >11yrs with chronic condition

How?

- www.uhs.nhs.uk/readysteadygo



- What does late effects mean?
- What are the main therapy-based levels of long term follow-up in adulthood?
- What is the initial model of Care of LTFU Services?
- What is the revised model of Care of LTFU Services?
- What are the key points of the “Ready Steady Go” project?

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Toward an Optimal Management of Transition Age: Why, When, and How.

Transition to Adulthood : Critical Milestone
The jump

Ped approach	Adult approach
Family centered	Patient centered
Sociality oriented	Disease oriented
Informal and "friendly"	Formal and direct
Sensitive to school and QOL	Sensitive to complications, diet, physical exercise, compliance

the paediatric care to the adult care, the speaker highlighted.

A multicenter Italian retrospective survey regarding diabetic ketoacidosis management in children with type 1 diabetes.

Figure 1 - Distribution of participating centers through Italy

Table 1 - DKA prevalence during calendar years 2012 / 2013 in Italy

Area (diagnosed patients)	Total	Number of clinical centers	Primary care centers
North (n=10)	4463	2192	718
North (diagnosed patients)	4463	2192	718
DKA (n=16)	981	483	114
DKA (n=16)	981	483	114
Severe DKA (n=16)	253	118	35
Severe DKA (n=16)	253	118	35
Younger than 6 years (n=1)	63	34	7
DKA (n=16)	446	216	77
DKA (n=16)	446	216	77
Severe DKA (n=16)	108	54	18
Severe DKA (n=16)	108	54	18
Younger than 6 years (n=1)	63	34	7

- In Italy there are 56 Services for Pediatric Diabetes.
- Around 17.000 children and adolescents are cared by the Italian SPD.
- More than 1200 children are diagnosed to have TDM1 and 1000 reach the age of transition (18 yr) every year.

Prof. Cerutti from Turin (I), spoke about this topic, by presenting published data on transition in children affected by Type 1 Diabetes. The success of this process mainly depends from the presence of a physician able to drive the adolescent from the

Prof. Cerutti in the main part of his presentation spoke about the Italian situation in transition procedures and the program developed by the three scientific societies involved: SIEPD, SID and AMD. In the final part of his presentation the speaker spoke about the open questions on transition of adolescents with Type 1 Diabetes.

Research: Care Delivery
Condition-related predictors of successful transition from paediatric to adult care among adolescents with Type 1 diabetes

Predictors of successful transition from paediatric to adult diabetes care • E. Maly et al.

FIGURE 1 Less to follow-up 1 year after discharge from paediatric clinic.

- What are the main characteristics of the transition process in Type 1 diabetic patients?
- What's about the SIEDP-SID-AMD consensus on Transition?
- What are the point of strength of the Italian program developed with the involvement of SIEDP, SID and AMD?
- What are the weakness points of this program?
- What is the Torino experience on transition procedures?
- What are the main topics for the future research in transition programs?

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Toward an optimal clinical management of transition age. Why, when and how.

Diabetes Care for Emerging Adults: Recommendations for Transition From Pediatric to Adult Diabetes Care Systems

EMERGING ADULTHOOD—For the purposes of this statement, we have chosen to focus on the age range of 18–30.

In contrast to the views of traditional developmental psychology, contemporary thinking is that young adulthood does not immediately follow adolescence, but begins when youth are in their late 20s or early 30s and that the developmental stage between ages 18 and 30 years defines a period called emerging adulthood (16). E.C.

Up to 30% if not planned

Poor compliance
Loss of parental supervision
Feeling discouraged, overwhelmed

At risk behaviors
Fear for future issues

Adult guidelines are often based on data from older adults
Alcohol use and smoking is equivalent to rates in healthy young



Organisation at Paris Sud University Hospitals

Service d'Endocrinologie et Diabétologie Pédiatrique (0-12 years)	6 practitioners	Overlap: 3 diabetologists
Service de Médecine des Adolescents Unité Diabète-Hypertension-Nutrition 12- 20 years	6 practitioners	
Service d'Endocrinologie > 18 years	5 practitioners	Overlap: 1 diabetologist 1 gynécologist

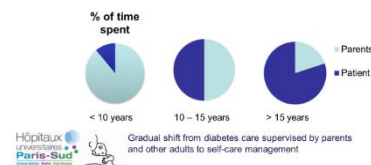


Round Table, Taormina, 7 ottobre 2016

Prof. De Filippo from Paris (F), presented data derived from his experience at the “Service de Médecine des Adolescents” in the Bicêtre Hospital located in Paris. The speaker spoke about the diabetes care for emerging adults, where the term “emerging adults” identifies the paediatric patients in the transition age. In the final part of his talk, Prof. De Filippo spoke about the approaches performed in his clinical center, for improving transition in the care system. The speaker concluded his talk by highlighting the importance of an approach directly inspired from the therapeutic education principles.

THERAPEUTIC EDUCATION

Therapeutic education aims at improving patient treatment by giving patients independence, and helping them obtain and maintain the necessary skills to live more comfortably with their disease.

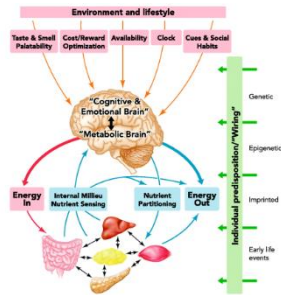


- Why is it necessary to implement specific strategies for driving people which belongs to the so called “emerging adulthood group”?
- What are the main approaches for improving transition in the Care System?
- What’s about therapeutic education with parents and patients?

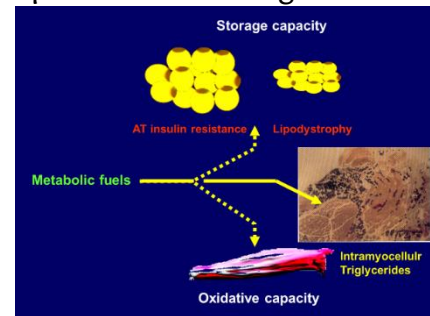
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Physiopathology of Obesity.

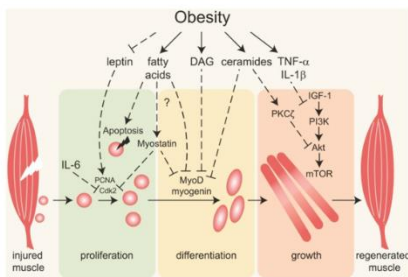


Prof. Vettor from Padua (I), presented very interesting data about this topic. The speaker talked about obesity as a result of an energy balance impairment. More in particular Prof. Vettor pointed to the reasons for the preferential dialog between the adipose organ and skeletal muscle, leading to Obesity. The main part of the presentation went deeper in explaining the role of fatty acids in the



pathogenesis of obesity, the adipocyte dysfunction and the metabolic consequences. The speaker highlighted the major role played by the onset of the insulin resistance at the level

of the adipose tissue, leading to the adipocyte dysfunction. Another mechanism leading to the adipocyte dysfunction is driven by the oxidative stress through the ROS production at the mitochondria level and the trans-differentiation in the adipogenesis processes. Prof. Vettor concluded his talk highlighting the role of communication between organs as a protective factor against the onset of the diseases.

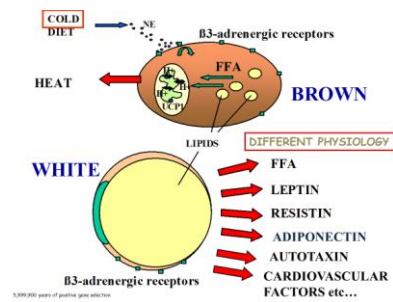


- What are the reasons for a preferential dialog between adipose organ and skeletal muscle?
- What is the pathogenic action of the fatty acids?
- What are the main hormones and lipid mediators leading to the correct function of the adipose tissue?
- What is the main metabolic mechanism leading to the lipotoxicity?
- Why does the insulin resistance cut down the physiological expansion of the adipose tissue?
- What is the role of NO in the exercise-induced mitochondrial metabolism?

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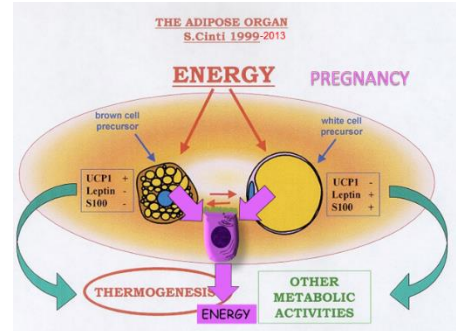
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The Adipose Organ.

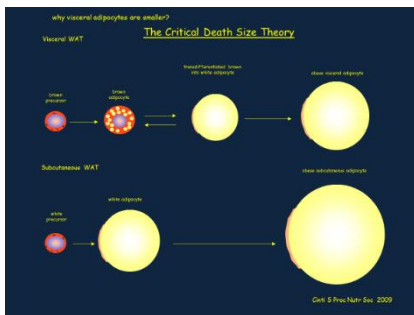


Prof Cinti from Ancona (I), spoke about the adipose organ, by presenting data about its composition in mixed white and brown adipocytes. The speaker spent the main part of his presentation in explaining this phenomenon, the presence of two total different tissues in the same organ: white adipocytes together with brown adipocytes. Prof. Cinti highlighted the role of the

brown adipocytes in preserving the onset of obesity and went deeper in explaining the mechanisms leading to the plasticity of the adipocytes. The speaker passed through the presentation of new unpublished data, in order



to explain the molecular mechanisms at the basis of the adipocytes transformation in total different cells like mammary glands, the so called pink cells. The adipose organ is composed by three types of cells: white, brown and pink. In the last part of his presentation Prof. Cinti spoke about the adipose organ in obese patients and the mechanisms leading to the onset of the visceral adipocytes.

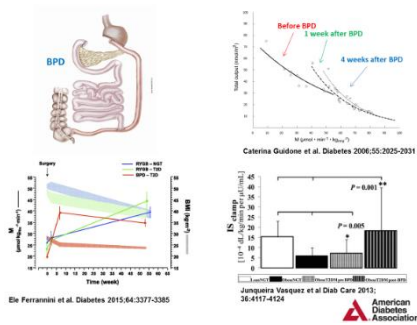


- Why two different tissues, with different physiologic roles, like the white and brown adipocytes, are contained into the same organ?
- What is the role of the Paucilocular adipocytes?
- What is the origin of the pink adipocytes?
- What are the mechanisms leading to the onset of visceral adipocytes?
- Why are the visceral adipocytes smaller than the subcutaneous adipocytes?

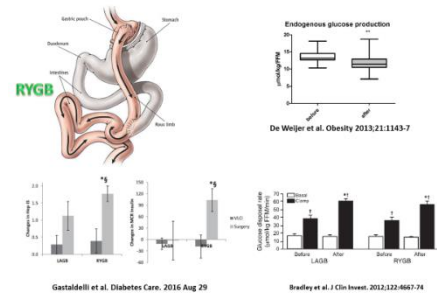
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Mechanisms of Diabetes remission after metabolic surgery



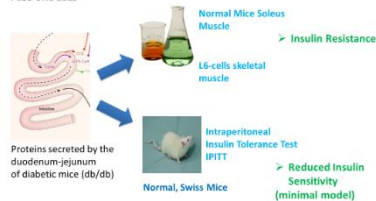
Prof. Mingrone from Rome (I), spoke about this topic, by presenting data on bariatric surgery and the metabolic control in diabetic patients. The speaker talked about two types of bariatric surgery, the bilio-pancreatic deviation and the gastric bypass. The obese patients treated with these two techniques have a positive effect on insulin sensitivity at two different levels, liver and peripheral tissues. The speaker went deeper in explaining the correlations between bariatric surgery and microbiota in order to discover a possible interaction between microbiota modifications and insulin sensitivity. Prof. Mingrone presented data taken by ongoing studies running at her surgical center, in order to discover the protein responsible for this positive effect on insulin sensitivity in patients undergone to bariatric surgery.



Jejunal Proteins Secreted by db/db Mice or Insulin-Resistant Humans Impair the Insulin Signaling and Determine Insulin Resistance

S. Salinari, C. Debard, A. Bertuzzi, C. Durand, P. Zimmet, H. Vidal, G. Mingrone

PLOS ONE 2013



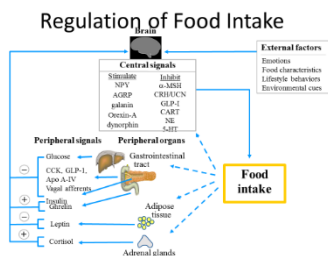
- What is the main effect of the bilio-pancreatic deviation on the insulin sensitivity?
- What are the antidiabetic effects of the Duodenal Jejunal exclusion?
- What are the main effects of the bariatric surgery at the microbiota level?
- What is the metabolic mediator of the bariatric surgery positive effect on insulin sensitivity?
- What are the main hormone families present in the GUT?

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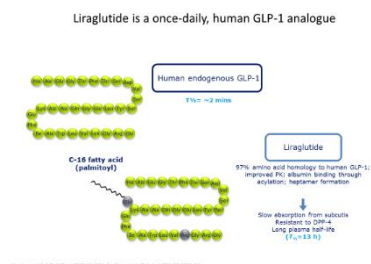
Novelties on Drugs for the Treatment of Obesity

Prof. Muratori from Como (I), spoke about the drugs available for the treatment of obesity and the related new information. The speaker started his talk by presenting the main mechanisms of action of these drugs on the regulation of the food intake, together with the behaviour modification and the meal replacement. Prof. Muratori spent the main part of his presentation by talking about the

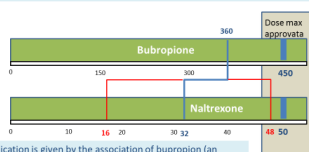


new drugs approved for the chronic weight management: Liraglutide and Bupropion-naltrexone. The speaker presented

some data on efficacy, safety and weight maintenance, of



Bupropione + Naltrexone (Contrave/Mysimba)
On 18 December 2014, the Committee for Medicinal Products for Human Use (CHMP) adopted a positive opinion, recommending the granting of a marketing authorization for the medicinal product Mysimba, 8 mg/90 mg, prolonged-release tablet, for the management of weight in adult patients



This medication is given by the association of bupropion (an atypical antidepressant also used in smoking cessation and seasonal affective disorder) and naltrexone (an antagonist of μ -opioid receptors, used clinically for the treatment of opioid and alcohol dependences)

these two drugs in comparison with diet alone. FDA emitted a warning for Bupropion-naltrexone more in particular in subjects affected by epilepsy, the speaker pointed out. Finally, Prof. Muratori spoke about other new drugs approved by FDA but not yet by EMA. In conclusion Prof. Muratori highlighted that, in order to achieve a better response in weight loss, it is necessary add diet and behavioural modifications to the drug therapy.

- What are the drugs approved for obesity in Italy and in USA?
- What are the mechanisms of action of Liraglutide and Bupropion-naltrexone?
- What are the more effective Liraglutide dosages in weight loss?
- What are the main gastrointestinal adverse events linked to the Liraglutide administration?
- What is the effective Bupropion-naltrexone dosage in weight loss?
- What are the main adverse events linked to the Bupropion-naltrexone administration?
- Which are the new drugs approved by FDA but not yet by EMA, presented by Prof. Muratori?

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