

DAY 1

Scientific Tracks & Abstracts



7th European Congress on

Obesity and Eating Disorder

April 12-13, 2018 Amsterdam, Netherlands

DAY 1

April 12-13, 2018

Sessions

Obesity | Obesity Causes | Obesity & Associated Health Disorders | Bariatric Surgery | Diet in Obesity & Gastrointestinal Disorders | Obesity and Weight Management

Session Chair: **Paul Davidson**, Harvard Medical School, USA

Session Introduction

Title: NAFLD and NOFLD: Obese or Slim it will get you

H Hesham A-Kader, The University of Arizona, USA

Title: How the Kaizen Model helped determine the health and wellbeing profiles of a predominately overweight and obese male workforce, and to reduce the risk within a large mining services company in Perth, WA

Thomas Graeme Wright, The University of Western Australia, Australia

Title: Postoperative Psychological Issues in Bariatric Surgery

Paul Davidson, Harvard Medical School, USA

Title: Phospholipase C-Related Catalytically Inactive Protein Regulates Fat Metabolism and Energy Expenditure

Takashi Kanematsu, Hiroshima University, Japan

Title: Altered bile acid metabolism after bariatric surgery and glycaemic control

Royce P Vincent, King's College Hospital NHS Foundation Trust, London, UK

Title: Vitamin D status and body mass index in type 2 diabetic Jordanian patients

Fadwa Ghazi Abdullah Hammouh, American University of Madaba, Jordan

Title: Hypothyroidism like syndrome due to goitergenic food

Abdul Razzaque Abdul Hameed Qureshi, A Hameed Qureshi Clinical Development Center & IGNOU University, India

Title: Maternal perception and self-nutritional perception of brasilian children and adolescents

Denise Lellis, University of Sao Paulo, Brazil

NAFLD AND NOFLD: OBESE OR SLIM IT WILL GET YOU

H Hesham A-Kader

The University of Arizona, USA

Nonalcoholic fatty liver disease (NAFLD) is rapidly becoming one of the most prominent causes of liver disease worldwide. The rising incidence of NAFLD is linked to the obesity epidemic and the subsequent metabolic disorders associated with it. Although obesity is a main risk factor for the development of NAFLD, it can also arise in lean subjects at any age including the pediatric age group. Non-obese fatty liver disease (NOFLD) can be encountered in different clinical setting and in association with an array of genetic, autoimmune, nutritional, drug-induced and metabolic, disorders including lysosomal acid lipase deficiency. In this presentation, we will discuss the general common features and the clinical conditions associated with NAFLD and NOFLD.

Biography

H Hesham A-Kader is currently working as Professor at the University Arizona. He received his MD degree from the University of Cairo. He completed his Masters in Pediatrics from the University of Cairo. He then worked at the University of New York served as Associate Professor and Professor at the University of Arizona. He has published several research papers and original articles and chapters in prestigious journal and major textbooks. His publications reflect his research interests in Hepatology and fatty liver. He is certified by the Boards of Pediatrics, Pediatric Gastroenterology and the Board of Nutrition. He is also an editorial member and reviewer of several journals. He is interested in the field of pediatric Hepatology specifically in neonatal cholestasis and fatty liver disease,

hassan@peds.arizona.edu

April 12-13, 2018
Amsterdam, NetherlandsThomas Graeme Wright et al., J Obes Eat Disord 2018, Volume: 4
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HOW THE KAIZEN MODEL HELPED TO DETERMINE THE HEALTH AND WELLBEING PROFILES OF A PREDOMINATELY OVERWEIGHT AND OBESE MALE WORKFORCE, AND TO REDUCE THE RISK WITHIN A LARGE MINING SERVICES COMPANY IN PERTH, WA?

Thomas Graeme Wright, D Cottam and T Maroni

University of Western Australia, Australia

A Kaizen has many components and is a Japanese term for continuous improvement. The Kaizen aims to make the business model better. The challenge was applying the Kaizen model to improve the health profile of the overweight and obese workforce. It had not been done before so find out how we created an Australian first. Kaizen is a philosophy and practice that sees improvement in productivity as a gradual and methodical process. It represents change for the better on a regular basis. A Kaizen ensures employee satisfaction, making the job more fulfilling, less tiring and safer. Safety is a keystone of this company yet they have a workforce at great risk. How? The format of the traditional Kaizen model is PDCA.

Plan - what to expect

Do – best solution implemented

Check- evaluate the solution to the problem

Act - make it a standard or change further

We will demonstrate how we applied these four

key components of the PDCA model to create a unique approach to satisfy the Kaizen and reduce the risk profile of the company. Find out how we identified the one health factor that would drive the improvement and fit one of the key objectives of a Kaizen – “eliminating waste”. When subjected to change, over a period, this factor had to show absolute improvement within the company. Find out how we created a unique set of approaches to track this impact. Building a relationship with a company and its workforce, using a Kaizen Model, challenges our current management practices and approaches in Australia as to how we manage the health, wellbeing and performance of the any workforce. We will demonstrate how this alternative delivery model is particularly relevant for those of us in the business of creating elite workforces and improving their health and performance profiles.

Biography

Thomas Graeme Wright completed his PhD in Weight Management, Hormones and Metabolic Changes from the University of Western Australia. He published five papers on his research during his PhD. He is the Managing Director of Optimum – a consulting company that works with industries to help create elite workforces and improve the performance of all those at work. He has been at the leading edge of health management and particularly obesity and overweight management in Australia for many decades.

gwright@optimumhms.com.au

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POSTOPERATIVE PSYCHOLOGICAL ISSUES IN BARIATRIC SURGERY

Paul Davidson

Harvard Medical School, USA

While candidates for bariatric surgery are commonly required to have a preoperative psychological assessment, less emphasis is placed on assessing and treating the post-surgical behavioural issues which arise. International standards regarding postoperative care vary, and it is important to recognize the emotional impacts of dramatic weight loss. Issues to be addressed include the presence of disordered eating behaviour and how they may vary from typical maladaptive eating issues. The increased risk of substance use following bariatric procedures has received more attention in the research literature, but clinicians and patients alike often underestimate the potential impacts. Most significantly, alcohol use disorders deserve special focus as there is a growing body of evidence that such problems not only are more likely to surface postoperatively, but that the incidence seems to increase with time. Relational concerns arise following significant weight loss, not only in terms of the individual's expectations of others, but in terms of how others react to the dramatic changes seen in bariatric patients. This can lead to emotional distance which can disrupt friendships and even increase the risk of divorce. On a similar note, the relation with the self can be challenged, especially in terms of self-image, particularly when there is a mismatch between an internalized view and a changing external appearance, an issue magnified by the problem of excess skin. This talk will focus on the many emotional challenges faced by an individual with significant weight loss. Attendees will gain a better appreciation for the behavioural problems which may arise after successful bariatric surgery and ways to approach their treatment.

Biography

Paul Davidson serves as the Director of Behavioural Services at the Center for Metabolic and Bariatric Surgery at Brigham and Women's Hospital in Boston. He obtained a BA in Psychology from Brandeis University and earned his PhD in Clinical Psychology at Brigham Young University. He completed an Adult Internship and Child/Adolescent Fellowship at the Cambridge Hospital/Harvard Medical School. He serves as the Chair of the Integrated Health Support Group Committee for ASMBS. He is an Instructor in Psychiatry at Harvard Medical School, has spoken internationally about bariatric topics. He has published in numerous journals, is an Associate Editor for the *Obesity Surgery* journal and a Reviewer for *Surgery for Obesity and Related Disorders*. He is passionate about his commitment to his patients, integrative care, and advancing behavioural medicine research.

pdavidson@bwh.harvard.edu

April 12-13, 2018
Amsterdam, NetherlandsTakashi Kanematsu et al., J Obes Eat Disord 2018, Volume: 4
DOI: 10.21767/2471-8203-C1-008**PHOSPHOLIPASE C-RELATED CATALYTICALLY INACTIVE PROTEIN REGULATES FAT METABOLISM AND ENERGY EXPENDITURE****Takashi Kanematsu, Kana Oue, Yosuke Yamawaki and Satoshi Asano**

Hiroshima University, Japan

Obesity is characterized by excessive body fat accumulation stored as triacylglycerol (TAG) in adipose lipid droplets, and the breakdown of stored TAG is stimulated by food deprivation (fasting) or stress. Sympathetic nerve activation enhances lipolysis in adipocytes, a process of which is regulated by phosphorylation of hormone sensitive lipase (HSL) and perilipin. We have elucidated that phospholipase C-related catalytically inactive protein (*PRIP*), a binding partner of protein phosphatase 1 (PP1) and 2A (PP2A), modulates the lipolysis process in adipose tissues and regulates adiposity and thermogenesis. *PRIP* was originally identified as an inositol 1, 4, 5-trisphosphate binding protein and a phosphatidylinositol 4, 5-bisphosphate through its pleckstrin homology domain. *PRIP* is similar to phospholipase C- δ 1 but lacks enzymatic activity. *Prip*-knockout (KO) mice showed a lean phenotype. The phosphorylation levels of HSL and perilipin were greater in white adipose tissue (WAT) prepared from regular diet-fed or fasted *Prip*-KO mice than those in wild-type mice, suggesting enhanced lipolytic activity in *Prip*-KO WAT. In response to adrenaline stimulation, *PRIP* and protein phosphatases, PP1 and PP2A, translocated onto lipid droplets in *Prip*-KO adipocytes, which enhanced dephosphorylation of HSL followed by the inhibition of non-esterified fatty acid and glycerol production. The upregulation of lipolytic activity was also observed in *Prip*-KO brown adipose tissue (BAT). Furthermore, *Prip*-KO BAT displayed increased expression of uncoupling protein 1 (UCP1). Consistently, a high-fat diet (HFD)-fed *Prip*-KO mice showed increased energy expenditure, a high rectal temperature, and a lean phenotype compared with control wild-type mice. Collectively, *PRIP* is a novel molecule that regulates fat metabolism and thermogenesis.

Biography

Takashi Kanematsu received his PhD in Biochemistry from Kyushu University, Fukuoka Japan, in 1994. He then worked as a Postdoctoral Fellow at Vanderbilt University, TN USA, and, subsequently, served as Assistant and Associate Professor in the Department of Biochemistry at Kyushu University (1997–2008). From 2009, he is Professor and Chair of the Department of Cellular and Molecular Pharmacology at Hiroshima University, Hiroshima Japan. He currently serves on the Editorial Board of *Journal of Pharmacological Sciences*.

tkanema2@hiroshima-u.ac.jp

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ALTERED BILE ACID METABOLISM AFTER BARIATRIC SURGERY AND GLYCAEMIC CONTROL

Royce P Vincent

King's College Hospital NHS Foundation Trust, London, UK

Bariatric surgery is now advocated as a treatment option for type 2 diabetes. The pathophysiology of improved glycaemic control after these procedures is not fully elucidated. Bile acids have traditionally been considered mediators of lipid absorption and cholesterol metabolism. However, in recent years bile acids have been identified as metabolic molecules which play a significant part in glucose metabolism amongst others. The metabolic effects are mediated by activating the nuclear receptor, farnesoid X receptor (FXR) and the G protein-coupled membrane receptor (TGR5) which may in part attribute to the long term remission of type 2 diabetes. This session will provide an overview of the relationship between bile acids and incretin hormones, laboratory analysis of bile acids as well as explore how altered bile acid metabolism after bariatric surgery can improve glycaemic control.

Biography

Royce P Vincent is a Consultant Chemical Pathologist at King's College Hospital NHS Foundation Trust and an Honorary Senior Lecturer at King's College London, UK. He is the Clinical Lead for Biochemistry and Parenteral Nutrition services. He obtained his MD (Res) at Imperial College London. His research interests are in Obesity, Endocrinology and Clinical Nutrition. He has published over 45 original research and review articles and is serving as an International Editorial Board Member for *Translational Metabolic Syndrome Research*.

royce.vincent@nhs.net

VITAMIN D STATUS AND BODY MASS INDEX IN TYPE 2 DIABETIC JORDANIAN PATIENTS

Fadwa Ghazi Abdullah Hammouh¹, Tukan S² and Takruri H²

¹American University of Madaba, Jordan

²The University of Jordan, Jordan

Obesity is a risk factor for type 2 diabetes and low serum 25(OH) D. The relationship between vitamin D status and BMI in T2DM Jordanian patients was studied. The study was a matched case-control study on (55) diabetic cases and (55) controls. Serum levels of fasting plasma glucose, insulin, calcium, glycosylated haemoglobin, vitamin D and parathyroid hormone were determined, while body mass index, the homeostasis model assessment-insulin resistance, the homeostasis model assessment- β secretion and the quantitative insulin sensitivity check index were calculated. Mean serum vitamin D levels for diabetic patients and nondiabetic subjects were deficient status adjusted for age and sex. Mean BMI was in the overweight level 25–29.9 Kg/m² for both groups. There were significant differences ($p < 0.05$) in HOMA-IR between groups (6.1 ± 1.2 vs. 2.7 ± 1.2 , respectively) and both groups had higher than normal serum insulin and insulin indices. 62.5% of the overweight and obese diabetic patients in this study were either deficient or insufficient in vitamin D compared to 37.5% of them were sufficient. For the whole sample, significant correlations, although not high, were obtained between serum vitamin D and Ca ($r = 0.2$, $P < 0.05$) and PTH ($r = -0.4$, $P < 0.05$). For the diabetic subjects, the significant correlation was only with PTH ($r = -0.4$, $P < 0.05$). Whereas, for the non-diabetic subjects, serum insulin ($r = 0.4$, $P < 0.05$), HOMA-IR ($r = 0.4$, $P < 0.05$), HOMA- β ($r = 0.4$, $P < 0.05$), QUICKI ($r = -0.3$, $P < 0.05$) and PTH ($r = -0.4$, $P < 0.05$) were significantly correlated with serum vitamin D. Serum levels of vitamin D and calcium have significant inverse relationship with BMI in diabetic patients. Vitamin D deficiency seems to be a problem in different parts of Jordan. Incidence of vitamin D deficiency is high in diabetic and non-diabetic groups.

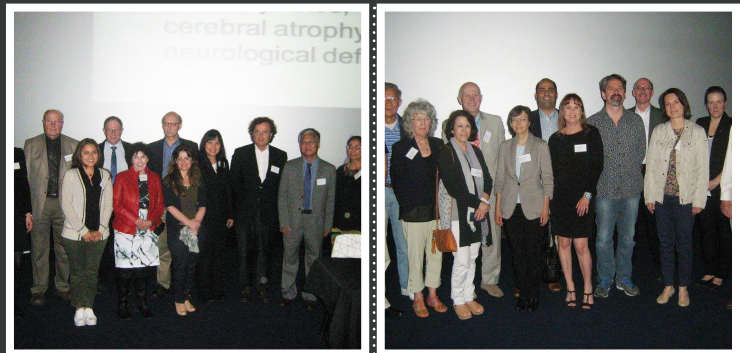
Biography

Fadwa Ghazi Abdullah Hammouh an Assistant Professor at the Nutrition and Dietetics Department/Faculty of Health Sciences at the American University of Madaba/Jordan and has completed her PhD from the University of Jordan.

f.hammouh@aum.edu.jo

DAY 2

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DAY 2

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Sessions

**Obesity & Associated Health Disorders | Obesity and Weight Management | Obesity Treatment
Diabetes And Obesity | Sedentary Lifestyle And Exercise Trends**

Session Chair: **Richard W. M. Visser**, American College of Sports Medicine, Aruba

Session Introduction

- Title: Morbidity in bariatric surgery in a group of patients in Mexico**
Jose Antonio Castaneda Cruz, Universidad de Guadalajara, Mexico
- Title: The Aruba Project, a road map for population approach to combating obesity**
Richard W. M. Visser, American College of Sports Medicine, Aruba
- Title: Regulation of appetite centre in the hypothalamus by nutrients**
Dina Muharib, King Saud Medical City, Saudi Arabia
- Title: Sex Hormone-Binding Globulin as a New Therapeutic Target against Obesity and NAFLD Development**
David Martinez Selva, Vall d'Hebron Research Institute (VHIR), Spain
- Title: Body weight and mortality in COPD: focus on the obesity paradox**
Francesco Spelta, University of Verona, Italy

MORBILITY IN BARIATRIC SURGERY IN A GROUP OF PATIENTS IN MEXICO

Jose Antonio Castaneda Cruz

Universidad de Guadalajara, Mexico

Introduction: Obesity is defined as the abnormal or excessive accumulation of fat that can be harmful to health, it is estimated that in Mexico about 10 million people are severely obese. Bariatric surgery has been characterized as a procedure that helps to control this disease as the chronic-degenerative diseases to which it is associated.

Materials & Methods: A retrospective study conducted by "Gastric Bypass Mexico" from 2015 to 2016 where 1840 surgeries were performed on patients diagnosed with morbid obesity under the criteria of the clinical practice guide for the surgical treatment of morbid obesity in Mexico by the same team under the same technique. They were carried out with preoperative care, as well as the intervention of a multidisciplinary team excluding patients with a history of previous metabolic surgeries. The procedures included in this study were: gastric sleeve, gastric bypass, duodenal junction and SADI-S. We evaluated different variables such as gender, age, body mass index, surgical time, hospital stay days in order to determine the axis of this study with respect to the complications presented in the patients, the index of presentation as well as the resolution.

Results: A total of 1840 surgeries were performed, finding that the female sex predominates 3 times more than men with a total of 1232 women and 608 men, and the average age of the patients who underwent these surgeries is of 36.19 years obtaining at least of age 12 years and at most 64 years. Regarding body mass index (BMI), patients presented an average of 41.76, with a minimum of 30.2 and a maximum of 153.42, compared to the hospital stay, the average is 1.22 days of hospital stay, with a minimum of one day and the maximum of 18 days (this case for complications of gastric leak treated in a conventional manner). The average surgical time of the procedures was 32.4 minutes. This leads us to verify that the decrease in the time in which the surgery is carried out, results in a decrease in the presentation of complications that occur in bariatric surgeries.

Biography

Jose Antonio Castaneda Cruz studied medicine at the Universidad de Guadalajara from 1994 to 2000. He has a specialty in surgery from the Universidad Autonoma de Chihuahua, at the Dr. Salvador Zubiran General Hospital in Chihuahua. Chihuahua México from 2000 to 2005. For 2006 he travels to Barcelona Spain, to the Laparoscopic Center of Barcelona Centro Teknon, to do the sub specialty in laparoscopic bariatric surgery, by Professor Carlos Ballesta López M.D. He returned to Mexico where he worked as a bariatric surgeon at the Instituto Mexicano del Seguro Social. In Cd. Juárez, Chihuahua, and later devoted himself to the practice of bariatric surgery in the private sector in the state of Jalisco. Since 2008 he attends the IFSO congresses that are presented every year. In 2015, he founded Gastric Bypass México A.C. of which he is president and responsible. Taking the opportunity at the last IFSO congress to present his clinical and surgical research works, in the same way in Mexico at the XX CIAM congress. Surgeon treating the case of Juan Pedro Franco Salas, "The most obese man in the world" and Dayana Camacho "The most obese teenager in the world" in both cases with an excellent medical surgical advance.

doctor@gastricbypassmexico.com

THE ARUBA PROJECT, A ROAD MAP FOR POPULATION APPROACH TO COMBATING OBESITY

Richard W M Visser

American College of Sports Medicine, Aruba

Obesity as a disease has reached historical, maximal peak values, with nearly one-third of the world's population suffering from obesity and obesity-related conditions. We are now witnessing the impact of this epidemic upon the global health status, with non-communicable diseases on the rise. We have also witnessed the shortcomings and failures of past actions taken when obesity is already present. In Aruba, a prevalence of 36% of childhood obesity was found in 2005, with a tendency to increase as compared to the data prior to 2000. Actions to improve healthy eating habits, reduce sedentary lifestyle and enable a social environment to prevent obesity were carried out in a systematic plan in the period from 2009–2013 and a positive change was observed in the incidence of obesity compatible with complete deceleration of the epidemic and improvement in health indicators. Through the lessons learned from the project as executed in Aruba, we demonstrate how a specific road map can be developed, implemented and highly successful in addressing the obesity epidemic. The roadmap includes the following steps: a population all basis-line study, an awareness campaign, an approved action plan by the stakeholders and Government, changes in infrastructure, the creation of an institute to promote a healthy lifestyle, an introduction to the 'Exercise is Medicine' initiative, and a study of progress with ongoing monitoring.

Biography

Richard W M Visser DC, PhD has focused on the pandemic of childhood obesity among various populations, working in consultation with other international experts. He studied the problem and implemented solutions from many perspectives: as a clinical researcher, academic and educator, activist and politician, entrepreneur, concerned citizen and parent. His work has made vital contributions to a greater understanding of the biological, sociological, and psychological factors surrounding childhood obesity. Early in 2008, he was appointed by the Government of Aruba to head the Obesity Task Force, and a year later, he began his four-year term 2009-2013 as Minister of Health, and Sport for Aruba. Today, he continues his innovative approach as CEO of VERA Health and Education.

drvisser@me.com

REGULATION OF APPETITE CENTRE IN THE HYPOTHALAMUS BY NUTRIENTS

Dina Muharib

King Saud Medical City, Saudi Arabia

The obesity problem is dramatically increasing worldwide. The surgical gastric bypass has been found to be the most effective treatment for obesity and it is associated with two benefits: the changes in dietary behavior and suppression of appetite by increasing anorexigenic signals secretion (peptide tyrosine tyrosine and glucagon-like peptide 1 secretion). These gut hormones stimulate the anorexigenic neurons and inhibit the orexigenic neurons in the hypothalamus. Some nutrients have been studied for their effect on appetite, as protein, and dietary fibre. High fibre diet and high protein diet were effective in reducing food intake, body weight, fat mas, and preserved lean mass, through increasing anorexigenic gut hormones, which affect anorexigenic and orexigenic neurons in the hypothalamus.

Keywords—appetite regulation, dietary fibre, hypothalamus, protein.

Biography

Dina Muharib has MSc in Human Nutrition (subspecialty Molecular Nutrition) from University of Aberdeen, UK 2016. Her Master's project underwent at Rowett institute of nutrition and health, titled (Appetite-related Hypothalamic Gene Expression in Rats on High Fibre Diet). She is a bariatric dietitian at King Saud Medical City, KSA. She had participated in many national and international conferences.

dina.muharib.15@aberdeen.ac.uk

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SEX HORMONE-BINDING GLOBULIN AS A NEW THERAPEUTIC TARGET AGAINST OBESITY AND NAFLD DEVELOPMENT

David Martinez Selva, Cristina Saez-Lopez, Cristina Hernandez and Rafael Simo

Vall d'Hebron Research Institute (VHIR), Spain

Low plasma SHBG levels are present in obese subjects of all ages and in overweight individuals, these are biomarkers for the metabolic syndrome and predict type 2 diabetes and cardiovascular disease risk. There are no *in vivo* models to study SHBG expression and regulation during obesity development, since rodents unlike humans do not express the SHBG gene in their livers. In the present study, we have developed a unique mouse model that expresses the human SHBG and it develops obesity, by crossing the human SHBG transgenic mice with the C57BL/ksJ-db/db mice. The characterization of this SHBG-C57BL/ksJ-db/db mouse model have allowed us to determine: (1) the molecular mechanisms and transcription factors causing the SHBG downregulation during obesity development, which involved changes in liver HNF-4 α and PPAR γ mRNA and protein levels. These results were further confirmed in human liver biopsies; (2) that SHBG overexpression protects against body weight increase, adiposity and NAFLD development. The SHBG overexpression in C57BL/ksJ-db/db mice significantly reduced adipose tissue and liver weight. Overall, we have created the first mouse model that resembles what occurs in human obese subjects in terms of SHBG expression and regulation. More importantly, our results point out to SHBG as a protective factor against adiposity and NAFLD. Therefore, SHBG could be a new therapeutic target whereby increased expression may reduce obesity and NAFLD.

Biography

David Martinez Selva received Bachelor's Degree in Biology in 1996 at the University of Barcelona. He obtained my PhD in Biochemistry and Molecular Biology at the Autonomous University of Barcelona in 2001. After his PhD he has accepted as a post-doctoral position for 7 years in Professor Hammond laboratory first at the LRCC in the UWO, Canada and later on at the Child and Family Research Institute (CFRI) in the University of British Columbia (UBC), Vancouver, British Columbia, Canada where he worked on the molecular mechanisms regulating hepatic SHBG production in several human SHBG transgenic mice and HepG2 cells. Eight years ago he obtained a principal investigator position through the Miguel Servet Program in the Diabetes and Metabolism Department at the Vall d'Hebron Research Institute in Barcelona, Spain.

david.martinez.selva@vhir.org

BODY WEIGHT AND MORTALITY IN COPD: FOCUS ON THE OBESITY PARADOX

Francesco Spelta, A M Fratta Pasini, L Cazzoletti and M Ferrari
University of Verona, Italy

The positive association between overweight, obesity, and cardiovascular and all-cause mortality is well established, even though this relation is typically U shaped with an increased risk also in low-weight subjects. However, being overweight or obese has been associated with a better prognosis in subjects suffering from chronic diseases, id est the "obesity paradox". In both community-dwelling and hospitalized patients with COPD, several studies have reported a significant protective effect of obesity on all-cause mortality, indicating that also in obstructive pulmonary diseases an obesity paradox may be present. Interestingly, the "paradox" is more evident for subjects with severe bronchial obstruction (i.e. a lower FEV1), while in mild-moderate conditions the weight-related mortality shows a behavior similar to that observed in the general population. Several factors may confound the relation between COPD, obesity and mortality. The lower FEV1 found in obese people may be linked to a restrictive defect rather than to an obstructive one. Due to the modified chest wall mechanical properties related to increased fat mass-obese COPD patients may present, respect to their lean counterpart, a lower lung hyperinflation which is associated to higher mortality. The traditional classification of COPD attributes to obese "blue bloaters" a low grade emphysema in opposition to lean "pink puffers"; the fact that emphysema extent is related to mortality may bias the relationship between weight and survival. It is also to underline that the majority of the studies consider BMI rather than body composition (a better predictor of mortality) when studying the intriguing relation between weight, COPD and mortality. Reverse bias has also to be taken into account, hypothesizing that an unintentional weight loss may be the deleterious factor related to mortality, rather than considering obesity a protective one.

Biography

Francesco Spelta is a PhD student at the University of Verona, Italy. After attending the School of Medicine (at the University of Ferrara, Italy), he enrolled in the Internal Medicine Residency at the University of Verona and, once finished it, he joined the PhD programme in Biomedical, Clinical and Experimental Sciences at the same university. During the Residency, he spent more than one year at Washington University in St. Louis, USA, working with Dr. Luigi Fontana's group on clinical trials about the role of calorie restriction and intermittent fasting on longevity and health. His main interests in research are related to nutrition and different conditions, with particular regards to cardio-pulmonary diseases and healthy aging.

francesco.spelta@univr.it