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Resistance exercise to prevent and manage sarcopenia and dynapenia

Timothy D Law, Leatha A Clark and **Brian C Clark**
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For more than 20 centuries, the muscle wasting (sarcopenia) and weakness (dynapenia) that occurs with old age has been a predominant concern of mankind. Exercise has long been suggested as a treatment to combat sarcopenia and dynapenia, as it exerts effects on both the nervous and muscular systems that are critical to positive physiological and functional adaptations (e.g., enhanced muscle strength). For more than two decades, scientists have recognized the profound role that progressive resistance exercise training can have on increasing muscle strength, muscle size and functional capacity in older adults. In this review article, we discuss how resistance exercise training can be used in the management and prevention of sarcopenia and dynapenia. We first provide an overview of the evidence for this notion and highlight certain critical factors—namely exercise intensity, volume and progression—that are keys to optimize the resistance exercise prescription. We then highlight how many, if not most, of the commonly prescribed exercise programs for seniors are not the best practices, and subsequently present easy-to-read guidelines for a well-rounded resistance exercise training program designed for the management and prevention of sarcopenia and dynapenia, including example training programs for the beginner through the advanced senior resistance exerciser. These guidelines have been written for the academician as well as the student and health care provider across a variety of disciplines, including those in the long term care industry, such as wellness instructors or activity directors.
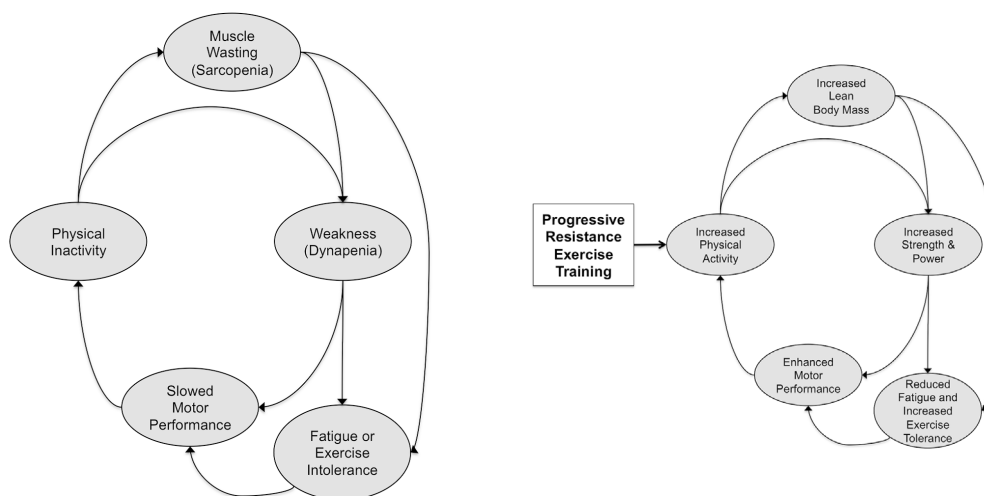
Biography

Timothy D Law is a Board Certified Physician with two decades of Clinical experience, and serves as the Medical Director of the Clinical and Translational Research Unit (CTRU) as well as Ohio Musculoskeletal and Neurological Institute (OMNI) at Ohio University and Science and Health in Artistic Performance (SHAPe) Clinic. During the first decade of his career, his primary focus was on Military Medicine and Acute Care. During the second decade of his career, he transitioned into administration as a Physician at WellPoint Inc. (the largest managed health care company in the Blue Cross and Blue Shield Association). He is a Medical Director of Acute Care for Hardin Memorial Health System (a 10-county regional hospital and health services system in Kentucky) and; CEO and practicing Physician at Vine Grove Family Medicine, PSC (primary care practice with 10,000 patients).

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Home monitoring of sleep and exposure to black carbon in patients with COPD and healthy controls

Joren Buekers[1,2], Erika Lutin[2], Anouk Vaes[1,3], Patrick De Boever[1], Emiel Wouters[3], Martijn Spruit[3], Jan Theunis[1], Jean-Marie Aerts[2]

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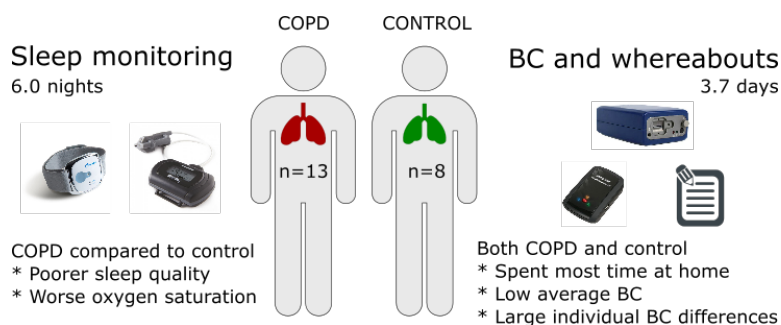[2]KU Leuven, Belgium
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Statement of the Problem: Chronic obstructive pulmonary disease (COPD) is a highly prevalent chronic disease which is anticipated to become the third leading cause of death worldwide in 2030. A promising new method for chronic disease management is home telemonitoring. Although both quality of sleep and exposure to air pollution are linked with quality of life and mortality, little attention has been directed towards home monitoring of these variables. Therefore, the aim of this study is to explore the feasibility and value of home monitoring of sleep and exposure to air pollution. Exposure to air pollution will be assessed as exposure to black carbon (BC), as this is considered a valuable air pollution indicator.

Methodology & Theoretical Orientation: An observational case-control study was conducted. COPD patients (n=13) and age-sex matched healthy controls (n=8; six healthy partners and two additional healthy controls) registered sleep for one week using a pulse oximeter and a multi-sensor activity monitor. Personal exposure to BC was measured using an aethalometer. A GPS and travel diary linked their whereabouts with the measured BC values.

Findings: Sleep and BC were on average measured for 6.0 nights and 3.7 days respectively. COPD patients were found to have poorer sleep quality, e.g. higher time awake after sleep onset (84.66 min. versus 36.35 min.), and worse oxygen saturation levels, e.g. average saturation level (89.65% versus 93.34%) in comparison with healthy controls. Both patients and healthy controls spent most time at home (91%), which resulted in a low average exposure to BC (1249 ng/m³). However, BC levels ranged from 198 ng/m³ to 3093 ng/m³, indicating large individual differences.

Conclusion & Significance: The results suggest that home monitoring of both sleep and BC provide potential valuable information for managing the health status of CODP patients.

Biography

Joren Buekers is working as a PhD Researcher in a joint project between University of Leuven, Belgium; VITO, Belgium and; CIRO, Netherlands. His research focusses on home monitoring of patients with COPD in order to follow up their health status and predict exacerbations. The novelty of his approach can be found in the use of continuous measurements of a variety of variables (e.g. oxygen saturation or exposure to black carbon), instead of only performing daily spot checks of these variables. Dynamic analyses of the resulting time series contain valuable information for future developments in home monitoring and managing of patients with COPD.

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The efficacy of carvedilol vs. propranolol in decreasing portal hypertension among cirrhotic patients - A meta-analysis

Higinio T Mappala and **D K Gurung**
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Background: Despite advances in management of acute variceal bleeding, the hospital mortality of cirrhotic patients remains as high as 20%. It has been established that hemodynamic response to drug treatments either with propranolol or nadolol alone or with a beta-blocker in combination of propranolol and nitrates. A decrease in hepatic venous pressure gradient (HPVG) to 12 mm HG or 20% is of clinical significance in reducing complications related to liver cirrhosis. Mortality increases when portal hypertension is not addressed therapeutically.

Aim: Aim of this study is to compare the hemodynamic effect of carvedilol vs. propranolol in cirrhotic patients in reducing portal hypertension measured in terms of hepatic venous pressure gradient.

Materials & Methods: Meta-analysis and randomized control trials were extracted from different sources, from PubMed, Embase, Cochrane Library, Google, and Science Citation Index (ISI Web of Science), *BMJ*, Best practice, Cochrane, GastroHep, Medscape, and other web sources, comparing carvedilol and propranolol in cirrhotic patients. 14 articles were searched and reviewed and after exclusion, four articles with a total of 28 patients were included, whose primary outcome is a hemodynamic response, a decrease in hepatic venous pressure gradient (HVPG) induced by the respective drugs. Patients (N=38) received carvedilol (N=21) at a dose range of 6.5 to 50 mg per day and propranolol dose at 10 mg-320 mg per day.

Results: The forest plot showed results in favor of carvedilol, which reduced HVPG by 19% compared to propranolol, which reduced HPVG by 12% from baseline (p value=0.0004).

Conclusion: The meta-analysis shows that carvedilol is superior to propranolol in decreasing HVPG - 19% and 12% respectively (p value of 0.0004). This may have significant clinical implications in terms of reducing complications due to liver cirrhosis, like variceal bleeding in portal hypertensive patients.

Biography

Higinio Mappala is currently working as an Associate Professor at Department of Internal Medicine-Gastroenterology-Clinical Nutrition-Clinical Toxicology, Jose Reyes Memorial Medical Center in Philippines. He graduated at University of Santo Tomas (UST), College of Medicine. He is the member of Hepatology Society of the Philippines and Philippine Society of Enteral/Parenteral Nutrition. He has published numerous research papers and articles in reputed journals and has extended his valuable service towards the scientific community with his extensive research work.

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Acute axonal sensoriomotor polyneuropathy in SLE hemodialysed patient - case presentation

Lavinia-Oltita Bratescu[1], **Marta-Emanuela Gemene**[1], **Cristina-Gabriela Moga**[1], **Adrian-Dorin Zugravu**[2,3] and **Diana Copaceanu**[1]
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Systemic lupus erythematosus (SLE) is most common autoimmune disease in women between 20 and 40 years. 10 to 30% of patients with proliferative lupus nephritis progress to ESRD and needs dialysis. Acute axonal sensoriomotor polyneuropathy is not common associated with SLE, even when SLE is active. SLE activity is much attenuated after dialysis started. A 48-year-old women, SLE diagnosed in 2002 was treated with Medrol and Plaquenil, then by hip arthroplasty for aseptic necrosis of the bilateral femoral neck. HD was started in 2007 (spurt severe lupus nephritis, intolerant to treatment with cyclophosphamide, anti-phospholipid syndrome - deep left leg thrombosis and left-cilioretinal artery and secondary hypertension). The monoclonal gammopathy in the context of persistent hypercalcemia (multiple myeloma was denied) was associated in 2014. The symptoms (extreme asthenia, important pain and muscle weakness, lower and upper limbs motor deficit, right peripheral facial paresis - a frigore) initially interpreted as a spurt of SLE activity (IgG, C3, ANA, Antibodies DNA ds positive) were treated with mycophenolate and methylprednisolone in Jan 2016 without improved evolution. Acute axonal sensorimotor polyneuropathy diagnosis was sustained in the Neurology Clinic by: ENG/EMG (acute demyelinating polyneuropathy, motor amplitudes reduced by driving blocks distale), albuminocytologic dissociation of the cerebrospinal fluid (LCR), no evidence of space-occupying processes by native brain CT. A right femoral central venous catheter vein was inserted and five plasmapheresis sessions were conducted followed by quarterly intravenous administration of 2g/kg of body weight immunoglobulin (five cures) with improved evolution. The first particularity of the case is the sustaining of SLE activity in HD patient. Usually, after dialysis autoimmune systemic disease shows no activity. The second feature of the case is the association of acute axonal sensorimotor polyneuropathy with SLE, whose causal relationship has not been definitely established.

Biography

Lavinia-Oltita Bratescu completed her Graduation at University of Medicine and Pharmacy from Timisoara, in Romania. From 2007, she worked as a Nephrologist at Sf Pantelimon International Healthcare Systems Nephrology and Dialysis Medical Center, in Bucharest. From 2012, she is a Chief Physician of this medical center and from January 2016 - Chief Physician at Diaverum Morarilor Nephrology and Medical Center in Bucharest, Romania. She completed her PhD in November 2013. Her PhD thesis entitled "The role of iron and hepcidin in pathogenesis of anemia on hemodialysis patients". For the first time in a study in 2010 (published in *Journal of Renal Nutrition*), we measured hepcidin-25 using a commercial competitive ELISA method. Also, she has participated in national and international nephrology conference as a speaker and as poster presenter.

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Detection of JC Polyomavirus Tumor-Antigen In Gastric Carcinoma, a report from IRAN

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Background: Although the global incidence of gastric cancer has been declined dramatically over the recent few decades, it is still a common cancer in different parts of the world. It has been scientifically suggested that some oncogenic viruses like JCV might play a role in Gastric carcinogenesis. The viral transforming protein, T-antigen (T-Ag) has the ability to bind and inactivate tumor suppressor proteins including p53 and pRb that might lead to malignant outcome, though its role might vary in different geographic parts due to viral distribution and other habits resulting in GI cancer.

Objective: The aim of present study was to investigate the presence of JCV T-Ag sequence and its expression in cancerous and non-cancerous adjacent gastric tissues in Iranian patients.

Methods: Thirty one sample pairs of formalin fixed paraffin embedded (FFPE) tissue specimens of gastric cancer and adjacent non-cancerous tissues (ANCT) were investigated on the basis of Real-time polymerase chain reaction. Samples were subjected for the immunohistochemistry examination using an anti-T-Ag monoclonal antibody.

Results: Real time experience followed by sequencing revealed JCV sequences in 17 (54.84%) of gastric cancer tissues and in 10 (32.25%) of non-cancerous gastric mucosa (OR=1.7). Immunohistochemical study also showed the presence of T-Ag in nuclear compartment.

Conclusions: These data indicate, for the first time, presence of JC virus in gastric carcinoma samples in our socioeconomic region. These findings provide a summative, supportive data for a possible role of JCV T-Ag in carcinogenesis of gastric malignancy.

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Nurses' motivating practices in self-management support, a self-determination theory perspective

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Statement of the Problem: Chronic conditions account for more than half of the global disease burden. Today, patients living with a chronic condition are expected to take a more active role in dealing with the physical, psychosocial and social demands of their disorder. To achieve optimal self-management, patients often require professional support. Nurses are challenged to drop their expert role and form partnerships with patients. Evidence demonstrates that nurses often control the process of self-management and leave little room for patients' autonomy. According to the Self-Determination Theory (SDT), a motivating and autonomy-supportive healthcare climate has beneficial effects on health behavior outcomes, whereas a demotivating, controlling climate might lead to adverse effects on e.g. patients' motivation and health behavior. This study aimed to explore nurses' motivating practices in chronic care SMS and its association with person-related antecedents–derived from the SDT.

Methods: Cross-sectional multicenter study was conducted within a random clustered sample of hospitals and home care organizations in Belgium. Nurses with at least 50% of their patients living with a chronic illness were eligible to participate. Data were collected through validated self-reporting instruments between January 2016 and May 2017. Motivating versus demotivating practices was measured by a validated vignette-based questionnaire. Four behavioral options can be distinguished i.e. an autonomy-supportive, structuring, controlling, or chaotic practice in chronic condition management. Person-related antecedents were measured with the basic psychological need satisfaction and need frustration scale, the patient-invested contingent self-esteem scale and the Dutch version of the Maslach Burnout Inventory.

Results & Implications: Results will help us to learn if nurses establish a motivating, and thereby autonomy-supportive, or rather demotivating and controlling healthcare climate. The results will indicate what might be the predictive value of person-related antecedents on (de)motivating practices. The results can inform the development of an intervention to train nurses in giving autonomy to chronic patients in the management of their condition. teacher core member of the strategic policy unit of the Master of Nursing and Midwifery. She is also secretary of the Examination Committee and is a member of the steering committee of this key program

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The role of viruses in ARVD and atrial dysplasia

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The histologic structure of the RV free wall shows a typical pattern from epicardium to endocardium. In addition to apoptosis and adipogenesis, now reproduced in-the-dish fibrosis bordering or embedding cardiomyocytes is indispensable for a positive diagnosis of arrhythmogenic right ventricular dysplasia (ARVD). The quiescent form of this disease is found in 3.7% of the general population. However, in some patients it is possible to observe patchy distribution of areas of thick fibrosis occupied in some cases by lymphocytes (chronic-active form). This is the marker of myocarditis mostly due to viral infection. Presence of viruses has been found in patients with ARVD. At the end stage of the disease, the cause of death is irreversible heart failure. However, the patients with a LVEF<45% showed major presence of fibrosis and lymphocytes invading both ventricles. This suggested the unexpected association of myocarditis and viruses as a superimposed phenomenon in ARVD patients and the cause of heart failure. Moreover, it has been recently demonstrated (Lopez-Ayala HR 2016) that ARVD patients are more susceptible than others to myocarditis explained by the same genetic factor at the origin of the trouble in development. This concept discovered in ARVD can be extended to all the other forms of cardiomyopathies. This concept is important since it is now possible to treat viral myocarditis.

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Psychiatric and substance use disorders co-morbidities and hepatitis C: Diagnostic and treatment implications

Peter Hauser and **Shira Kern**
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Chronic hepatitis C virus (HCV) viral infection is the most common blood-borne viral infection and approximately 2%-3% of the world's population or 170-200 million people are infected. In the United States as many as 3-5 million people may have HCV. Psychiatric and substance use disorders (SUDs) are common co-morbid conditions found in people with HCV and are factors in predisposing people to HCV infection. Also, these co-morbidities are reasons that clinicians exclude people from antiviral therapy in spite of evidence that people with HCV and co-morbid psychiatric and SUD can be safely and effectively treated. Furthermore, the neuropsychiatric side effects of interferon (IFN), until recently the mainstay of antiviral therapy, have necessitated an appreciation and assessment of psychiatric co-morbidities present in people with HCV. The availability of new medications and IFN free antiviral therapy medication combinations will shorten the duration of treatment and exposure to IFN and thus, decrease the risk of neuropsychiatric side effects. This will have the consequence of dramatically altering the clinical landscape of HCV care and will increase the number of eligible treatment candidates as treatment of people with HCV and co-morbid psychiatric and SUDs will become increasingly viable. While economically developed countries will rely on expensive IFN-free antiviral therapy, less developed countries will likely continue to use IFN-based therapies at least until such time as IFN free antiviral medications become generic. The current manuscript discusses the efficacy and viability of treating HCV in people with psychiatric and SUDs comorbidities, the treatment of the neuropsychiatric side effects of IFN-based therapies and the impact of new medications and new treatment options for HCV that offer the promise of increasing the availability of antiviral therapy in this vulnerable population.

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Osteoporosis chronic pain

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University of Florence, Italy

Osteoporosis (OP) is a silent disease unless a fracture occurs; it is a major health problem, mainly due to fragility fractures, that occur at vertebral and peripheral sites. Vertebral osteoporosis is markedly underdiagnosed. Approximately 200 million people in the world are affected by osteoporosis and 8.9 million fractures occur each year worldwide. Worldwide estimates predict 2 billion people will be over 65 years old by 2050, increasing this third millennium pandemic. Mechanisms of pain in osteoporosis are poorly known, though several studies show that osteoclasts play a significant role in bone pain etiology. Most common manifestations of osteoporosis are vertebral compression fractures that cause persistent pain. First manifestation could be an acute pain due to pathological fracture. Pain in osteoporosis is mainly nociceptive if it becomes persistent. Sensitization of peripheral and central nervous system can occur, so underlining the transition to a chronic pain syndrome. Decrease of pH in the bone always happens during osteoclasts hyperactivity. Both of the two acid-sensing ion channels expressed by nociceptors (TRPV1 and ASIC-3) are excited and sensitized by a decrease in pH. It is demonstrated that bone mass decline with age whereas density of sensory nerve fibers in the tissue do not decline in older age. Moreover, during pathological processes of bone, sensory nerve fibers undergo pathological modifications. All these factors contribute to generate and maintain pain and osteoclasts play an important role in pain through activation of the acid-sensing receptors including ASICs and TRPV1 by creating acidosis. Over time, multiple fractures may lead to progressive loss of stature and continuous contraction of the paraspinal musculature to maintain posture. Literature is unanimous in supporting the role of physical exercise in the prevention of chronic pain of osteoporotic origin; in particular, there is strong evidence for a beneficial effect of exercise on the pathogenesis of osteoporosis.

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Probiotics as an adjunct treatment in the eradication of *Helicobacter pylori* infection: A meta-analysis study

Higinio T Mappala and **Jeffri Louie Ulip**
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Introduction: *Helicobacter pylori* (HP) infection accounts for majority of cases of dyspeptic conditions with a prevalence rate of approximately 51.7% in the Philippines as of 2013. Mainstay of treatment has been the standard combined therapy consisting of a Proton Pump Inhibitor (PPIs) plus clarithromycin and metronidazole or amoxicillin. Probiotics, are live micro-organisms, which when administered in adequate amounts, modulate the gut microbiome in the host. There are several studies which show that the addition of probiotics to the treatment regimen of HP infection could lead to higher eradication rate.

Aim: This is a meta-analysis study intends to determine the effect of the addition of probiotics compared to the conventional treatment of HP infection.

Methodology: Electronic databases used were PubMed, Cochrane Library, and Google Scholar and other targeted web searches. The search was limited to human studies only from the years 2002-2013, 10 studies were included. This review included patients who were randomly screened to have *H. pylori* infection, regardless of gender, with no age restriction. The interventions used were a combination treatment of triple therapy with probiotics and treatment of triple therapy alone as the control group. Outcome was measured by determining HP eradication rates between the two groups. Data will be analyzed using RevMan 5.

Results: In this meta-analysis with a combined total of 1,038 patients, 54% of patients were assigned to the triple therapy plus probiotic group and 46% under the standard triple therapy alone. Results showed an increased eradication rate of HP from 71% in the triple therapy alone group compared to 82% in the triple therapy group plus probiotics (P value-0.00001).

Conclusion: This meta-analysis of 10 RCTs involving 1,038 patients showed that the addition or supplementation of a probiotic to the standard treatment regimen for *Helicobacter pylori* infection significantly improved eradication rates (P value-0.00001).

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Chronic pain – a global concern with need for attention

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Chronic pain is common globally. People who through no fault of their own have their lives demolished by pain deserve our help. Prof. Henry Mc Quay, from Oxford clearly highlights the plight of chronic pain sufferers in his article - Help and hope at the bottom of the pile in the BMJ 2008. A detailed reference in the chief medical officer's report also highlighted the importance and impact of chronic pain on the society. The report aimed to raise awareness to the fact that patients with chronic pain are underserved and there is a need for medical attention to the field of chronic pain. Chronic pain is a serious problem globally with significant socio-demographic, economic and health related concerns. Estimates suggest that 20% of adults suffer from pain globally and 10% are newly diagnosed with chronic pain each year. By 2030, the WHO predicts that the four leading contributors of global burden of disease, chronic pain is an important co-morbidity associated these. The economic impact of pain is greater than most other health conditions due to effects on rates of absenteeism, reduced levels of productivity and increased risk of leaving the labor market. A US study showed lost productivity amounting to $61/£32.34 billion per year due to chronic pain, while a UK report confirmed £3.8 billion cost of management of adolescent pain alone. There is need for a conscious and concerted effort for the global medical fraternity to take notice of the current and future impact of this under-recognized and under-treated condition that has significant consequences on the global health image, global economy and most importantly people's lives. The discussion will include early diagnosis and management options such as neuromodulation and their cost effectiveness in complex chronic pain patients.

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Anti-obesity and hypolipidemic effects of *Cynometra cauliflora* in animal model of obesity

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University of Malaya, Malaysia

Cynometra cauliflora is a medicinal plant, belonging to Fabaceae family, traditionally used to treat hyperlipidemia and diabetes. This study investigated the anti-obesity and lipid lowering effects of ethanol extract of *C. cauliflora* leaves (200 and 400 mg/kg) and its major compound (vitexin, 10 mg/kg) on obese mice (C57BL/6) induced by high-fat diet (HFD). Animals were fed with either a standard pellet diet for normal control group or HFD for eight weeks to induce obesity. The oral administration of *C. cauliflora*, for eight weeks, resulted in a significant decrease in body weight gain in mice fed a high-fat diet. Moreover, the oral administration of *C. cauliflora* resulted in a significant reduction of serum triglycerides, total cholesterol, and low-density lipoprotein cholesterol (LDL) levels compared to the HFD control group. Besides, the *C. cauliflora* extract treatment elicited a significant reduction in serum levels of glucose and insulin compared to the HFD control group. In addition, histology examination showed that accumulation of hepatic lipid droplets induced by HFD was reduced markedly by *C. cauliflora*. The present study thus concludes that *C. cauliflora* possess hypolipidemic activity that protects the body against adverse effects of high fat diet-induced obesity, possibly through lipid lowering action and improving the insulin sensitivity. Besides, these findings support traditional knowledge and suggest that *C. cauliflora* may potentially be useful for managing obesity and hyperlipidemia.

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Association between preoperative depressive symptoms and postoperative cognitive dysfunction in patients submitted to surgery undergoing general anesthesia

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Introduction: Among the several factors that are related to the occurrence and the level of postoperative cognitive dysfunction is the depression. Depression can occur before, during, or after a surgical event, and depending on the period in which it occurs refers to different causes and consequences.

Aim: Aim of this study is to investigate associations between postoperative cognitive changes and the presence of depressive symptoms.

Method: With the approval of the institutional ethics committee, patients over 60 years of age undergoing non-cardiac surgeries under general anesthesia were evaluated. Scale of quality of life, depressive symptoms and neuropsychological battery were applied to assess general mental state, attention, memory and executive abilities. This battery defines the cognitive index of stability and detects mood alterations and cognition. These evaluations were performed before surgery, and at the 3rd, 7th, 21st, 90th and 180th postoperative days. The data collected will be analyzed using analysis of variance for repeated measurements (ANOVA and Mann Whitney), considering values below $p < 0.05$. The relationship between the occurrence of preoperative depressive symptoms and POCD will be assessed by the chi-square test and Spearman's correlation test.

Results: Of the 75-elderly recruited, 71 patients signed the ICF, 62 patients were submitted to a battery of preoperative tests, operated and reassessed postoperatively. Of these 53.1% had depressive symptoms preoperatively. We analyzed the association between the presence of preoperative depressive symptoms and the presence of postoperative cognitive dysfunction. Regarding the TICS test, a different behavior was observed between patients with and without depressive symptoms, with a decrease in performance on the 3rd and 7th day in patients presenting with such symptoms, while patients without depressive symptoms maintained a constant increase in their performance. During all evaluative moments, indicating preoperative depressive symptoms can cause cognitive impairment, increasing the probability of occurrence of POCD.

Conclusion: Preoperative depression symptom cause postoperative cognitive impairment.

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Control of D-glucose is determinant of renal preservation in diabetes

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We previously reported that D-glucose is a strong predictor of renal function change in diabetes. This study is an expansion of a previous study but with a longer duration. 85 diabetic patients were treated with a combination of glargine or detemir and regular insulin for 26.3 ± 24.6 (SD) months. Blood pressure was controlled by beta blockers, calcium channel blockers, sympathetic inhibitors or a combination, and chlorthalidone in resistant cases. Angiotensin converting enzyme inhibitors and receptors blockers (ACE/ARB) were excluded. Objectives were to determine if this paradigm of treatment prevents progression of diabetic nephropathy. Fasting (F) and 2-hours postprandial (2hPP), glucose, serum creatinine (SCr) and estimated glomerular filtration rate (eGFR); hemoglobin A1c (HbA1c); and sitting systolic and diastolic blood pressure (SBP) were recorded for first and last visits. Mean blood pressure (MBP) and differences (d, 2hPP-F) were calculated for glucose, Scr and eGFR. Parameters between first and last visits were compared using a paired t test adjusted for age, gender and duration of treatment with $P<0.05$ considered significant. No significant differences were found between first and last treatments for F and 2hPP glucose; F and 2hPP Scr; F and 2hPP eGFR, and; HbA1c. D-glucose, sitting SBP and MBP were significantly lower at last compared to first visit. Combining both visits, D-glucose and HbA1c showed a direct and positive correlation with dScr. Changes in post minus pretreatment values were significantly positively correlated between HbA1c and FBG, 2hPPG or D-glucose. In conclusion, the current study reinforces the importance of control of D-glucose (2hPP-F) with insulin and exclusion of ACEI/ARB in achieving renal preservation in diabetes.

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August 31-September 01, 2017   Brussels, Belgium

Seasonality, morningness-eveningness and sleep in common non-communicable medical conditions and chronic diseases in a population

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The seasonal pattern for mood and behavior, the behavioral trait of morningness-eveningness, and sleep are interconnected features that may serve as etiological factors in the development or exacerbation of medical conditions. The study was based on a random sample of inhabitants aged 25 to 74 years living in Finland. As part of the national FINRISK 2012 study participants were invited (n=9905) and asked whether the doctor had diagnosed or treated them during the past 12 months for chronic diseases. A total of 6424 participants filled in the first set of questionnaires and 5826 attended the physical health status examination, after which the second sets of questionnaire were filled. Regression models were built in which each condition was explained by the seasonal, diurnal and sleep features, after controlling for a range of background factors. Of the chronic diseases, depressive disorder was associated with longer total sleep duration (p<0.0001) and poor sleep quality (p<0.0001). Of the measurements for health status assessment, none was associated with sleep features, but systolic blood pressure yielded significant (p<0.0001) associations with both seasonal and diurnal features at large. Sleep quality was the most sensitive probe in yielding associations with chronic diseases in this population-based study. The seasonal variations in mood and social activity, and the ease in getting up and tiredness in the morning were the most sensitive probes in yielding associations with blood pressure and waist circumference. Assessment of sleep quality, seasonal and diurnal features provides added value for health surveys of the general population.

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Feasibility and acceptability of mindfulness-based cognitive therapy in people with depression and cardiovascular disorders: Feasibility randomized controlled trial

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Background: Depression co-occurs in 20% of people with cardiovascular disorders, can persist for years, and predicts worse physical health outcomes. While psychosocial treatments have been shown to effectively treat acute depression in those with comorbid cardiovascular disorders, to date there has been no evaluation of approaches aiming to prevent relapse and treat residual depression symptoms in this group. Therefore, the current study aimed to examine the feasibility and acceptability of a randomized controlled trial design evaluating an adapted version of mindfulness-based cognitive therapy (MBCT) designed specifically for people with co-morbid depression and cardiovascular disorders.

Methods: A 3-arm feasibility randomized controlled trial was conducted, comparing MBCT adapted for people with cardiovascular disorders plus treatment as usual (TAU), mindfulness-based stress reduction (MBSR) plus TAU, and TAU alone. Participants completed a set of self-report measures of depression severity, anxiety, quality of life, illness perceptions, mindfulness and self-compassion, and had their blood pressure taken immediately before, immediately after, and three months following the intervention. Those in the adapted-MBCT arm additionally underwent a qualitative interview to gather their views about the adapted intervention.

Results: 3400 potentially eligible participants were approached when attending an outpatient appointment at a cardiology clinic or via a GP letter following a case note search. 242 (7.1%) were interested in taking part, 59 (1.7%) were screened as being suitable, and 33 (<1%) were eventually randomized to the three groups. The sample was heterogeneous in terms of whether they reported current depression or had a history of depression and the time since the onset of cardiovascular disease (one to 25 years). Of 11 participants randomized to adapted MBCT seven completed the full course, levels of home mindfulness practice were high, and positive qualitative feedback about the intervention was given. 29 out of 33 participants randomized completed all the assessment measures at all three time points. With regards to the primary outcome (depression), five out of the seven people who completed the adapted MBCT and three out of five under MBSR showed significant clinical change, while in TAU no one showed any clinical change at the three-month follow-up.

Conclusions: The adapted MBCT intervention was feasible and acceptable to participants. However, aspects of the trial design were not feasible. In particular, low recruitment rates were achieved and there was a high withdrawal rate between screening and randomization. Moreover, the heterogeneity in the sample was high meaning the adapted intervention was unlikely to be well tailored to all participants needs. This suggests that if the decision is made to move to a definitive trial, study recruitment procedures will need to be revised to more successfully recruit a target sample that optimally matches the adapted intervention.

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Does green space matter? Exploring relationships between green space type, physical activity, quality of life and cardiovascular disease prevalence

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This study explores whether specific types of green spaces (i.e., urban green spaces, forests, agricultural lands, rangelands, and wetlands) are associated with physical activity, quality of life, and cardiovascular disease prevalence. A sample of 8,976 respondents from the Behavioral Risk Factor Surveillance System, conducted in 2006 in Washington State across 291 zip-codes, was analyzed. Measures included physical activity status, quality of life, and cardiovascular disease prevalence (i.e. heart attack, angina, and stroke). Percentage of green spaces was derived from the National Land Cover Dataset. Multi-level regression analyses were conducted to analyze the data while controlling for age, sex, race, weight, marital status, occupation, income, education level, and zip-code population and socio-economic situation. Regression results revealed that no green space types were associated with physical activity, quality of life, and cardiovascular disease prevalence. On the other hand, the analysis showed that physical activity was associated with quality of life, and cardiovascular disease prevalence. The findings suggest that other factors such as naturalness, structure and distribution (sprawled or concentrated, large or small), quality, and characteristics of green space might be important in quality of life and cardiovascular disease prevalence rather than green space types. Therefore, further investigations are needed.

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Blood pressure control among hypertension patients on lifestyle management in an urban informal settlement in Kenya

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Background & Aim: Non-pharmacologic therapy in hypertension serves as an initial treatment before the start of a drug therapy and as an appendage to medication in persons already on drug therapy. These therapies can facilitate drug step-down and drug withdrawal in highly motivated individuals who achieve and sustain lifestyle changes. Specific objective for this study was to determine whether non-pharmacologic therapy reduced the levels of blood pressure among hypertensive clients in urban informal settlement of Kibera.

Methodology: This was a retrospective study of hypertension patients managed through lifestyle advice alone between periods May 2015 and April 2017. All clients who made at least three clinic visits during this period were included in the study. Patient visit details were recorded in routine registers. Analysis was done for patients using SPSS statistics version 7.0.

Results: A total of 528 participants were analysed and to that an average blood pressure of 151/91 at enrolment which was the same across both males and females. Only 34.4% (n=182) of patients had normalized their blood pressure with an average reduction of 24 mmg (148– 124) in the systolic and 11 mg (90-79) in diastolic measurement. The drop in blood pressure for men and women was 7 mmg (146) and 13 mmg (140) in systolic; and 10 mmg (83) and 9 mmg (84) reduction in diastolic respectively. The difference in the drop of systolic reduction blood pressure was not statistically significant..

Discussions: This study found out that lifestyle management alone was not effective for majority of participants in controlling blood pressure to recommended levels of below 140/90. This study recommends a review of hypertension guidelines of hypertension lifestyle management. It also recommends a structural follow-up system with strategies for improving lifestyle interventions.

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Adherence of diabetic self-care management and associated factors in Gamo Gofa zone public health hospitals, 2016

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Introduction & Aim: Adherence to diabetic therapy is defined as the extent to which a person's behavior in taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a healthcare provider. Non-adherence to lifestyle modification among diabetic patients develops the short-term risks and the long-term complications as well as declines the quality of life. This research was conducted to find out detailed and concrete data on diabetics self-care management practice.

Methods: Hospital based cross sectional study was conducted in three public health hospital of Gamo Gofa zone from February to June 15/2016.

Data Collection & Analysis: Structured questionnaire adapted from peer review literatures was used to collect data. Clinical related diabetic's complication or co-morbidities data was collected by physician through history and physical examination of patient. Data was entered into Epi Info version 7 and exported to SPSS Version 21 for analysis. Descriptive frequencies like cross tabulation will be calculated to describe the study population in relation to relevant variables. Binary logistic regression analysis will be undertaken to assess the presence and degree of association between dependent and independent variables. Finally significant factors will be identified based on AOR include with 5% confidence level and P-value less than 0.05 by conducting multivariable logistic regression.

Results: Of all respondents, 319 (50.52%) were male and the rest were female. The mean age of respondent was 48.47+13.86 years. The prevalence of adherence of diabetics' self-care management is 341 (53.7%). Poor adherence is detected in blood sugar measurement practice, dietary feeding practice, physical exercise and eye examination practice. Government worker AOR 2.74 (1.03, 7.30), training on diabetics self-care AOR 3.13 (1.89, 5.16), diabetics association membership AOR 1.59 (1.01, 2.50), glucometer AOR 2.70 (1.37, 5.33), duration of diabetics illness>10 years AOR 9.59 (3.99, 23.05), duration of diabetics illness 5-10 years AOR 4.84 (1.92, 12.23), absence of side effect of drugs AOR 2.21 (1.4, 3.48), absence of diabetics related co-morbidity AOR 1.54 (1.01, 2.33) were identified significant associated factors with good adherence of diabetics self-care management practice.

Conclusion & Recommendation: Significant number of diabetes patient had poor adherence to diabetic's self-care practice. For improving, special focus should be taken on diabetes patients who are farmer, having co-morbidity, drug side effect and for those with duration of diabetics less than five years. Training should be given for diabetic's patients on dietary feeding practice, physical exercise and eye examination practice regularly in the hospital during follow up periods.

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