A SOCIEDADE PORTUGUESA DE ATEROSCLEROSE contou com a colaboração da SANOFI para o desenvolvimento deste projecto

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Lancet. 2015 Oct 17;386(10003):1588-98.

The double challenge of resistant hypertension and chronic kidney disease.

Rossignol P, Massy ZA, Azizi M Bakris G, Ritz E, Covic A, Goldsmith D, Heine GH, Jager KJ, Kanbay M), Mallamaci F, Ortiz A, Vanholder R, Wiecek A, Zoccali C, London GM, Stengel B, Fouque D; ERA-EDTA EURECA-m working group; Red de Investigación Renal (REDINREN) network; Cardiovascular and Renal Clinical Trialists (F-CRIN INI-CRCT) network.

Resistant hypertension is defined as blood pressure above goal despite adherence to a combination of at least three optimally dosed antihypertensive medications, one of which is a diuretic. Chronic kidney disease is the most frequent of several patient factors or comorbidities associated with resistant hypertension.

The prevalence of resistant hypertension is increased in patients with chronic kidney disease, while chronic kidney disease is associated with an impaired prognosis in patients with resistant hypertension. Recommended low-salt diet and triple antihypertensive drug regimens that include a diuretic, should be complemented by the sequential addition of other antihypertensive drugs. New therapeutic innovations for resistant hypertension, such as renal denervation and carotid barostimulation, are under investigation especially in patients with advanced chronic kidney disease. We discuss resistant hypertension in chronic kidney disease stages 3-5 (ie, patients with an estimated glomerular filtration rate below 60 mL/min per 1·73 m(2) and not on dialysis), in terms of worldwide epidemiology, outcomes, causes and pathophysiology, evidence-based treatment, and a call for action.

PMID: 26530623 [PubMed - indexed for MEDLINE]

Vasa. 2015 Nov;44(6):444-50.

Normal values for intima-media thickness of the common carotid artery--an update following a novel risk factor profiling.

Randrianarisoa E, Rietig R, Jacob S, Blumenstock G, Haering HU, Rittig K, Balletshofer B.

BACKGROUND There is a widely approved influence of novel risk factors like the body fat distribution and the associated metabolic syndrome, subclinical inflammation, insulin resistance and prediabetic disturbances in glucose metabolism on the progression of atherosclerosis. Former studies examining normal values for intima-media thickness (IMT) did not consider all of these new study results in detail. We therefore aimed to assess an update on age- and gender-specific normal values for IMT accounting for these novel risk factors.

PATIENTS AND METHODS We evaluated IMT by high-resolution ultrasound (13 MHz) on the far wall of the common carotid artery in 801 subjects without cardiovascular disease (428 women aged 46.2±12.9 years; 373 men aged 47.3±13.3 years). After precise evaluation and exclusion of 14 cardiovascular risk factors, 90% limits of IMT were determined by parametric statistics.

RESULTS The reference limits of IMT according to the age classes 18-29, 30-39, 40-49 and 50-59 years were estimated as 0.47, 0.59, 0.67 and 0.70 mm in women and 0.47, 0.62, 0.72 and 0.80 mm in men.

CONCLUSIONS Age and gender-specific normal values for IMT are lower than reported in former studies after additionally accounting for novel cardiovascular risk factors. The still widely regarded upper IMT limit of 1 mm must be strictly regarded as obsolete.

PMID: 26515221 [PubMed - indexed for MEDLINE]

Am Surg. 2015 Oct;81(10):916-21.

An Early Warning Score Predicts Risk of Death after In-hospital Cardiopulmonary Arrest in Surgical Patients.

Stark AP(1), Maciel RC, Sheppard W, Sacks G, Hines OJ.

In-hospital cardiopulmonary arrest can contribute significantly to publicly reported mortality rates. Systems to improve mortality are being implemented across all specialties. A review was conducted for all surgical patients >18 years of age who experienced a "Code Blue" event between January 1, 2013 and March 9, 2014 at a university hospital. A previously validated Modified Early Warning Score (MEWS) using routine vital signs and neurologic status was calculated at regular intervals preceding the event. In 62 patients, the most common causes of arrest included respiratory failure, arrhythmia, sepsis, hemorrhage, and airway obstruction, but remained unknown in 27 per cent of cases. A total of 56.5 per cent of patients died before hospital discharge. In-hospital death was associated with American Society of Anesthesiologists status (P = 0.039) and acute versus elective admission (P = 0.003). Increasing MEWS on admission, 24 hours before the event, the event-day, and a maximum MEWS score on the day of the event increased the odds of death. Max MEWS remained associated with death after multivariate analysis (odds ratio 1.39, P = 0.025). Simple and easy to implement warning scores such as MEWS can identify surgical patients at risk of death after arrest. Such recognition may provide an opportunity for clinical intervention resulting in improved patient outcomes and hospital mortality rates.

PMID: 26463280 [PubMed - indexed for MEDLINE]

J Am Coll Cardiol. 2015 Oct 13;66(15):1643-53.

10-Year Coronary Heart Disease Risk Prediction Using Coronary Artery Calcium and Traditional Risk Factors: Derivation in the MESA (Multi-Ethnic Study of Atherosclerosis) With Validation in the HNR (Heinz Nixdorf Recall) Study and the DHS (Dallas Heart Study).

McClelland RL, Jorgensen NW, Budoff M, Blaha MJ, Post WS, Kronmal RA, Bild DE, Shea S, Liu K, Watson KE, Folsom AR, Khera A, Ayers C, Mahabadi AA, Lehmann N, Jöckel KH, Moebus S, Carr JJ, Erbel R, Burke GL.

BACKGROUND Several studies have demonstrated the tremendous potential of using coronary artery calcium (CAC) in addition to traditional risk factors for coronary heart disease (CHD) risk prediction. However, to date, no risk score incorporating CAC has been developed.

OBJECTIVES The goal of this study was to derive and validate a novel risk score to estimate 10-year CHD risk using CAC and traditional risk factors. METHODS: Algorithm development was conducted in the MESA (Multi-Ethnic Study of Atherosclerosis), a prospective community-based cohort study of 6,814 participants age 45 to 84 years, who were free of clinical heart disease at baseline and followed for 10 years. MESA is sex balanced and included 39% non-Hispanic whites, 12% Chinese Americans, 28% African Americans, and 22% Hispanic Americans. External validation was conducted in the HNR (Heinz Nixdorf Recall Study) and the DHS (Dallas Heart Study).

RESULTS Inclusion of CAC in the MESA risk score offered significant improvements in risk prediction (C-statistic 0.80 vs. 0.75; $p < 0.0001$). External validation in both the HNR and DHS studies provided evidence of very good discrimination and calibration. Harrell's C-statistic was 0.779 in HNR and 0.816 in DHS. Additionally, the difference in estimated 10-year risk between events and nonevents was approximately 8% to 9%, indicating excellent discrimination. Mean calibration, or calibration-in-the-large, was excellent for both studies, with average predicted 10-year risk within one-half of a percent of the observed event rate.

CONCLUSIONS An accurate estimate of 10-year CHD risk can be obtained using traditional risk factors and CAC. The MESA risk score, which is available online on the MESA web site for easy use, can be used to aid clinicians when communicating risk to patients and when determining risk-based treatment strategies.

PMCID: PMC4603537 [Available on 2016-10-13] - PMID: 26449133 [PubMed - indexed for MEDLINE]

J Am Coll Cardiol. 2015 Oct 6;66(14):1590-614.

Food Consumption and its Impact on Cardiovascular Disease: Importance of Solutions Focused on the Globalized Food System: A Report From the Workshop Convened by the World Heart Federation.

Anand SS, Hawkes C, de Souza RJ, Mente A, Dehghan M, Nugent R, Zulyniak MA, Weis T, Bernstein AM, Krauss RM, Kromhout D, Jenkins DJ, Malik V, Martinez-Gonzalez MA, Mozaffarian D, Yusuf S Willett WC, Popkin BM.

Major scholars in the field, on the basis of a 3-day consensus, created an in-depth review of current knowledge on the role of diet in cardiovascular disease (CVD), the changing global food system and global dietary patterns, and potential policy solutions. Evidence from different countries and age/race/ethnicity/socioeconomic groups suggesting the health effects studies of foods, macronutrients, and dietary patterns on CVD appear to be far more consistent though regional knowledge gaps is highlighted. Large gaps in knowledge about the association of macronutrients to CVD in low- and middle-income countries particularly linked with dietary patterns are reviewed. Our understanding of foods and macronutrients in relationship to CVD is broadly clear; however, major gaps exist both in dietary pattern research and ways to change diets and food systems. On the basis of the current evidence, the traditional Mediterranean-type diet, including plant foods and emphasis on plant protein sources provides a well-tested healthy dietary pattern to reduce CVD.

PMCID: PMC4597475 [Available on 2016-04-06] - PMID: 26429085 [PubMed - indexed for MEDLINE]

J Am Coll Cardiol. 2015 Oct 6;66(14):1577-86.

Psychological Distress Across the Life Course and Cardiometabolic Risk: Findings From the 1958 British Birth Cohort Study.

Winning A, Glymour MM, McCormick MC, Gilsanz P, Kubzansky LD

BACKGROUND Research suggests cardiovascular and metabolic diseases are influenced by psychological distress in adulthood; however, this research is often limited to adult populations and/or a snapshot measure of distress. Given emerging recognition that cardiometabolic diseases have childhood origins, an important question is whether psychological distress earlier in life influences disease development.

OBJECTIVES This study sought to assess whether life course patterns of psychological distress assessed from childhood through adulthood predict biomarkers of cardiometabolic risk in adulthood and whether effects of sustained distress differ from more limited exposure.

METHODS The sample (n = 6,714) consists of members of the 1958 British Birth Cohort Study who completed repeated measures of psychological distress and a biomedical survey at age 45 years. Psychological distress profiles over the life course (no distress, childhood only, adulthood only, or persistent distress) were identified from 6 assessments between ages 7 and 42 years. Cardiometabolic risk was assessed by combining information on 9 biomarkers of immune, cardiovascular, and metabolic system function. Covariate adjusted linear regression models were used to assess associations between distress profiles and cardiometabolic risk.

RESULTS Compared with those with no distress, cardiometabolic risk was higher among people with psychological distress in childhood only (β = 0.11, SE = 0.03, p = 0.0002), in adulthood only (β = 0.09, SE = 0.03, p = 0.007), and persistent across the life course (β = 0.26, SE = 0.04, p < 0.0001).

CONCLUSIONS Psychological distress at any point in the life course is associated with higher cardiometabolic risk. This is the first study to suggest that even if distress appears to remit by adulthood, heightened risk of cardiometabolic disease remains. Findings suggest early emotional development may be a target for primordial prevention and for promoting lifelong cardiovascular health.

PMID: 26429083 [PubMed - indexed for MEDLINE]

J Am Coll Cardiol. 2015 Oct 6;66(14):1566-74.

The Contribution of Tobacco Use to High Health Care Utilization and Medical Costs in Peripheral Artery Disease: A State-Based Cohort Analysis.

Duval S, Long KH, Roy SS, Oldenburg NC, Harr K, Fee RM(5), Sharma RR, Alesci NL, Hirsch AT.

BACKGROUND Tobacco use is an important preventable cause of peripheral artery disease (PAD) and a major determinant of adverse clinical outcomes.

OBJECTIVES This study hypothesized that tobacco use by PAD patients would be associated with higher health care utilization and associated costs.

METHODS We conducted a retrospective, cross-sectional study using 2011 claims data from the largest Minnesota health plan. The total cohort included individuals with 12 months of continuous enrollment and ≥ 1 PAD-related claim. Tobacco cessation pharmacotherapy billing codes were queried in a subgroup with pharmacy benefits. Outcomes were total costs, annual proportion of members hospitalized, and primary discharge diagnoses.

RESULTS A PAD cohort of 22,203 was identified, comprising 1,995 (9.0%) tobacco users. A subgroup of 9,027 with pharmacy benefits included 1,158 (12.8%) tobacco users. The total cohort experienced 22,220 admissions. The pharmacy benefits subgroup experienced 8,152 admissions. Within 1 year, nearly one-half the PAD tobacco users were hospitalized, 35% higher than nonusers in the total cohort ($p < 0.001$) and 30% higher in the subgroup ($p < 0.001$). In both cohorts, users were more frequently admitted for peripheral or visceral atherosclerosis ($p < 0.001$), acute myocardial infarction ($p < 0.001$), and coronary heart disease ($p < 0.05$). Observed costs in the total cohort were $64,041 for tobacco users versus $45,918 for nonusers. Costs for tobacco users also were consistently higher for professional and facility-based care, persisting after adjustment for age, sex, comorbidities, and insurance type.

CONCLUSIONS Tobacco use in PAD is associated with substantial increases in PAD-related hospitalizations, coronary heart disease and PAD procedures, and significantly greater costs. The results suggest that immediate provision of tobacco cessation programs may be especially cost effective.

PMID: 26429081 [PubMed - indexed for MEDLINE]

J Am Coll Cardiol. 2015 Oct 6;66(14):1538-48.

Saturated Fats Compared With Unsaturated Fats and Sources of Carbohydrates in Relation to Risk of Coronary Heart Disease: A Prospective Cohort Study.

Li Y, Hruby A, Bernstein AM, Ley SH, Wang DD, Chiuve SE, Sampson L, Rexrode KM, Rimm EB, Willett WC, Hu FB.

BACKGROUND The associations between dietary saturated fats and the risk of coronary heart disease (CHD) remain controversial, but few studies have compared saturated with unsaturated fats and sources of carbohydrates in relation to CHD risk.

OBJECTIVES This study sought to investigate associations of saturated fats compared with unsaturated fats and different sources of carbohydrates in relation to CHD risk.

METHODS We followed 84,628 women (Nurses' Health Study, 1980 to 2010), and 42,908 men (Health Professionals Follow-up Study, 1986 to 2010) who were free of diabetes, cardiovascular disease, and cancer at baseline. Diet was assessed by a semiquantitative food frequency questionnaire every 4 years.

RESULTS During 24 to 30 years of follow-up, we documented 7,667 incident cases of CHD. Higher intakes of polyunsaturated fatty acids (PUFAs) and carbohydrates from whole grains were significantly associated with a lower risk of CHD comparing the highest with lowest quintile for PUFAs (hazard ratio [HR]: 0.80, 95% confidence interval [CI]: 0.73 to 0.88; p trend <0.0001) and for carbohydrates from whole grains (HR: 0.90, 95% CI: 0.83 to 0.98; p trend = 0.003). In contrast, carbohydrates from refined starches/added sugars were positively associated with a risk of CHD (HR: 1.10, 95% CI: 1.00 to 1.21; p trend = 0.04). Replacing 5% of energy intake from saturated fats with equivalent energy intake from PUFAs, monounsaturated fatty acids, or carbohydrates from whole grains was associated with a 25%, 15%, and 9% lower risk of CHD, respectively (PUFAs, HR: 0.75, 95% CI: 0.67 to 0.84; p < 0.0001; monounsaturated fatty acids, HR: 0.85, 95% CI: 0.74 to 0.97; p = 0.02; carbohydrates from whole grains, HR: 0.91, 95% CI: 0.85 to 0.98; p = 0.01). Replacing saturated fats with carbohydrates from refined starches/added sugars was not significantly associated with CHD risk (p > 0.10).

CONCLUSIONS Our findings indicate that unsaturated fats, especially PUFAs, and/or high-quality carbohydrates can be used to replace saturated fats to reduce CHD risk.

PMCID: PMC4593072 [Available on 2016-10-06] - PMID: 26429077 [PubMed - indexed for MEDLINE]

N Engl J Med. 2015 Oct;373(14):1307-17.

Cardiometabolic Risks and Severity of Obesity in Children and Young Adults.

Skinner AC(1), Perrin EM, Moss LA, Skelton JA.

BACKGROUND The prevalence of severe obesity among children and young adults has increased over the past decade. Although the prevalence of cardiometabolic risk factors is relatively low among children and young adults who are overweight or obese, those with more severe forms of obesity may be at greater risk.

METHODS We performed a cross-sectional analysis of data from overweight or obese children and young adults 3 to 19 years of age who were included in the National Health and Nutrition Examination Survey from 1999 through 2012 to assess the prevalence of multiple cardiometabolic risk factors according to the severity of obesity. Weight status was classified on the basis of measured height and weight. We used standard definitions of abnormal values for total cholesterol, high-density lipoprotein (HDL) cholesterol, low-density lipoprotein cholesterol, triglycerides, blood pressure, glycated hemoglobin, and fasting glucose and report the prevalence of abnormal values in children and young adults according to weight status.

RESULTS Among 8579 children and young adults with a body-mass index at the 85th percentile or higher (according to the Centers for Disease Control and Prevention growth charts), 46.9% were overweight, 36.4% had class I obesity, 11.9% had class II obesity, and 4.8% had class III obesity. Mean values for some, but not all, cardiometabolic variables were higher with greater severity of obesity in both male and female participants, and the values were higher in male participants than in female participants; for HDL cholesterol, the mean values were lower with greater severity of obesity. Multivariable models that controlled for age, race or ethnic group, and sex showed that the greater the severity of obesity, the higher the risks of a low HDL cholesterol level, high systolic and diastolic blood pressures, and high triglyceride and glycated hemoglobin levels.

CONCLUSIONS Severe obesity in children and young adults was associated with an increased prevalence of cardiometabolic risk factors, particularly among boys and young men.

PMID: 26422721 [PubMed - indexed for MEDLINE]

Am Heart J. 2015 Oct;170(4):760-769.e2.

Undiagnosed diabetes is prevalent in younger adults and associated with a higher risk cardiometabolic profile compared to diagnosed diabetes.

Lee YH, Armstrong EJ, Kim G, Oh J), Kang SM, Lee BW, Ahn CW, Cha BS, Lee HC, Mantzoros CS, Kang ES.

BACKGROUND A substantial percentage of patients have undiagnosed diabetes. We investigated the demographic characteristics and cardiometabolic profiles of subjects with undiagnosed diabetes.

METHODS A cross-sectional study with nationally representative samples of 25490 subjects aged ≥ 20 years from the KHNANES 2008 to 2011, which applied a complex, multistage, probability proportional to size sampling design. Subjects were categorized as having normal glucose (n = 16880), impaired fasting glucose (n = 5771), undiagnosed diabetes (n = 713), or diagnosed diabetes (n = 2126). Hyper low-density lipoprotein cholesterolemia was individually evaluated by the 2004 Adult Treatment Panel III guidelines and predicted risk of cardiovascular disease was estimated from the Framingham model.

RESULTS Among overall subjects with diabetes, the prevalence of undiagnosed diabetes was markedly increased in younger adults compared to older adults (49% in diabetic subjects <50 years vs 23% in diabetic subjects ≥50 years, P < .001), suggesting significant discrepancies in age-based screening. Patients with undiagnosed diabetes were also more likely to have undiagnosed or uncontrolled hypertension and hyper-low-density lipoprotein cholesterolemia. Individuals with undiagnosed diabetes had a significantly higher predicted 10-year Framingham cardiovascular disease risk than those with diagnosed diabetes (11% vs 8% in <50 years, 33% vs 30% in ≥50 years; both P < .001). Patients with undiagnosed diabetes were also more likely to have multiple cardiovascular risk factors including obesity, smoking and uncontrolled hypertension.

CONCLUSIONS People with undiagnosed diabetes have a higher predicted risk for cardiovascular disease compared to those with diagnosed diabetes. Intensive screening for diabetes in younger adults should be stressed in public healthcare to reduce the burden of modifiable cardiometabolic risk among individuals with undiagnosed diabetes.

PMID: 26386800 [PubMed - indexed for MEDLINE]

Am Heart J. 2015 Oct;170(4):744-752.e2.

The relation between the presence of cardiovascular disease and vascular risk factors in offspring and the occurrence of new vascular events in their parents already at high vascular risk.

Weijmans M, van der Graaf Y, de Borst GJ, Asselbergs FW, Cramer MJ, Algra A, Visseren FL; SMART study group.

BACKGROUND For parents at high risk for cardiovascular events, presence of cardiovascular disease or risk factors in their offspring may be an indicator of their genetic load or exposure to (unknown) risk factors and might be related to the development of new or recurrent vascular events.

METHODS In 4,267 patients with vascular disease, hypertension, diabetes, or hypercholesterolemia enrolled in the SMART cohort, the presence of cardiovascular risk factors (hypertension, diabetes, hypercholesterolemia, smoking, or overweight) and cardiovascular disease (coronary artery disease, cerebrovascular disease, peripheral artery disease, or abdominal aortic aneurysm) was assessed in their 10,564 children. The relation between presence of cardiovascular disease or cardiovascular risk factors in their offspring and new or recurrent vascular events was determined by Cox proportional hazard analyses.

RESULTS Of the patients, 506 (12%) had offspring with cardiovascular disease, hypertension, hypercholesterolemia, or diabetes. Smoking in offspring was present in 1,972 patients (46%), and overweight in 845 patients (20%). During a median follow-up of 7.0 years (interquartile range 3.7-10.4), the composite outcome of myocardial infarction (MI), stroke, or vascular mortality occurred in 251 patients. Patients with offspring with cardiovascular disease, hypertension, hypercholesterolemia, or diabetes had an increased risk of vascular mortality (hazard ratio [HR] 2.9, 95% CI 1.2-7.1), MI (HR 1.6, 95% CI 1.1-2.5), and the composite outcome (HR 1.5, 95% CI 1.1-2.2). Diabetes in offspring was related to an increased risk of the composite outcome (HR 2.7, 95% CI 1.5-5.0), MI (HR 3.3, 95% CI 1.7-6.6), and vascular mortality (HR 3.4, 95% CI 0.8-14.8). Smoking and overweight in offspring were not related to increased vascular risk in parents.

CONCLUSIONS Presence of cardiovascular disease, hypertension, hypercholesterolemia, and diabetes in offspring, with diabetes mellitus being the most contributing cardiovascular risk factor, is related to an increased risk of developing new or subsequent vascular events in patients already at high vascular risk.

PMID: 26386798 [PubMed - indexed for MEDLINE]

Stroke. 2015 Oct;46(10):2861-7.

A Multicomponent Behavioral Intervention to Reduce Stroke Risk Factor Behaviors: The Stroke Health and Risk Education Cluster-Randomized Controlled Trial.

Brown DL, Conley KM, Sánchez BN, Resnicow K, Cowdery JE, Sais E, Murphy J, Skolarus LE Lisabeth LD, Morgenstern LB.

BACKGROUND AND PURPOSE The Stroke Health and Risk Education Project was a cluster-randomized, faith-based, culturally sensitive, theory-based multicomponent behavioral intervention trial to reduce key stroke risk factor behaviors in Hispanics/Latinos and European Americans.

METHODS Ten Catholic churches were randomized to intervention or control group. The intervention group received a 1-year multicomponent intervention (with poor adherence) that included self-help materials, tailored newsletters, and motivational interviewing counseling calls. Multilevel modeling, accounting for clustering within subject pairs and parishes, was used to test treatment differences in the average change since baseline (ascertained at 6 and 12 months) in dietary sodium, fruit and vegetable intake, and physical activity, measured using standardized questionnaires. A priori, the trial was considered successful if any one of the 3 outcomes was significant at the 0.05/3 level.

RESULTS Of 801 subjects who consented, 760 completed baseline data assessments, and of these, 86% completed at least one outcome assessment. The median age was 53 years; 84% subjects were Hispanic/Latino; and 64% subjects were women. The intervention group had a greater increase in fruit and vegetable intake than the control group (0.25 cups per day [95% confidence interval: 0.08, 0.42], P=0.002), a greater decrease in sodium intake (-123.17 mg/d [-194.76, -51.59], P=0.04), but no difference in change in moderate- or greater-intensity physical activity (-27 metabolic equivalent-minutes per week [-526, 471], P=0.56).

CONCLUSIONS This multicomponent behavioral intervention targeting stroke risk factors in predominantly Hispanics/Latinos was effective in increasing fruit and vegetable intake, reaching its primary end point. The intervention also seemed to lower sodium intake. Church-based health promotions can be successful in primary stroke prevention efforts.

PMCID: PMC4589523 [Available on 2016-10-01] - PMID: 26374480 [PubMed - indexed for MEDLINE]

Am J Clin Nutr. 2015 Oct;102(4):897-904.

Dietary inflammatory index and telomere length in subjects with a high cardiovascular disease risk from the PREDIMED-NAVARRA study: cross-sectional and longitudinal analyses over 5 y.

García-Calzón S, Zalba G, Ruiz-Canela M, Shivappa N, Hébert JR, Martínez JA(Fitó M, Gómez-Gracia E, Martínez-González MA, Marti A.

BACKGROUND Dietary factors can affect telomere length (TL), a biomarker of aging, through oxidation and inflammation-related mechanisms. A Dietary Inflammatory Index (DII) could help to understand the effect of the inflammatory potential of the diet on telomere shortening.

OBJECTIVE This study aimed to determine the association of the DII with TL and to examine whether diet-associated inflammation could modify the telomere attrition rate after a 5-y follow-up of a Mediterranean dietary intervention.

DESIGN This was a prospective study of 520 participants at high cardiovascular disease risk (mean ± SD age: 67.0 ± 6.0 y, 45% males) from the PREDIMED-NAVARRA (PREvención con DIeta MEDiterránea-NAVARRA) trial. Leukocyte TL was measured by quantitative real-time polymerase chain reaction at baseline and after 5 y of follow-up. The DII was calculated from self-reported data by using a validated 137-item food-frequency questionnaire.

RESULTS Longer telomeres at baseline were found in participants who had a more anti-inflammatory diet (lowest DII score) (P-trend = 0.012). Longitudinal analyses further showed that a greater anti-inflammatory potential of the diet (i.e., a decrease in the DII) could significantly slow down the rate of telomere shortening. Moreover, the multivariable-adjusted OR for short telomeres (z score ≤20th percentile) was 1.80 (95% CI: 1.03, 3.17) in a comparison between the highest (proinflammatory) and the lowest (anti-inflammatory) DII tertiles. Similarly, a greater DII (greatest proinflammatory values) after a 5-y follow-up was associated with almost a 2-fold higher risk of accelerated telomere attrition compared with the highest decrease in DII (greatest anti-inflammatory values) during this period (P-trend = 0.025).

CONCLUSIONS This study showed both cross-sectional and longitudinal associations between the inflammatory potential of the diet and telomere shortening in subjects with a high cardiovascular disease risk. Our findings are consistent with, but do not show, a beneficial effect of adherence to an anti-inflammatory diet on aging and health by slowing down telomere

shortening. These results suggest that diet might play a key role as a determinant of TL through proinflammatory or anti-inflammatory mechanisms. This trial was registered at controlled-trials.com as ISRCTN35739639.

PMCID: PMC4588745 [Available on 2016-10-01] - PMID: 26354530 [PubMed - indexed for MEDLINE]

J Nutr. 2015 Oct;145(10):2389-95.

Sugar-Sweetened Beverage Intake Is Positively Associated with Baseline Triglyceride Concentrations, and Changes in Intake Are Inversely Associated with Changes in HDL Cholesterol over 12 Months in a Multi-Ethnic Sample of Children.

Van Rompay MI, McKeown NM, Goodman E, Eliasziw M, Chomitz VR, Gordon CM, Economos CD, Sacheck JM.

BACKGROUND Intake of sugar-sweetened beverages (SSBs) is linked to greater cardiometabolic risk in adults. Although longitudinal evidence is sparse among children, SSB intake reduction is targeted to reduce cardiometabolic risk factors in this group.

OBJECTIVE We investigated characteristics associated with consumption of SSBs in a multi-ethnic sample of children/adolescents and measured cross-sectional and longitudinal associations between SSB intake and plasma HDL cholesterol and triglycerides (TGs) over 12 mo.

METHODS In a diverse cohort of children aged 8-15 y, cross-sectional associations (n = 613) between baseline SSB intake and blood lipid concentrations and longitudinal associations (n = 380) between mean SSB intake, changes in SSB intake, and lipid changes over 12 mo were assessed with multivariable linear regression.

RESULTS Greater SSB intake was associated with lower socioeconomic status, higher total energy intake, lower fruit/vegetable intake, and more sedentary time. In cross-sectional analysis, greater SSB intake was associated with higher plasma TG concentrations among consumers (62.4, 65.3, and 71.6 mg/dL in children who consumed >0 but <2, ≥2 but <7, and ≥7 servings/wk, respectively; P-trend: 0.03); plasma HDL cholesterol showed no cross-sectional association. In the longitudinal analysis, mean SSB intake over 12 mo was not associated with lipid changes; however, the 12-mo increase in plasma HDL-cholesterol concentration was greater among children who decreased their intake by ≥1 serving/wk (4.6 ± 0.8 mg/dL) compared with children whose intake stayed the same (2.0 ± 0.8 mg/dL) or increased (1.5 ± 0.8 mg/dL; P = 0.02).

CONCLUSIONS In a multi-ethnic sample of children, intake of SSBs was positively associated with TG concentrations among consumers, and changes in SSB intake were inversely associated with HDL cholesterol concentration changes over 12 mo. Further research in large diverse samples of children is needed to study the public health implications of reducing SSB intake among children of different racial/ethnic groups.

PMCID: PMC4580956 [Available on 2016-10-01] - PMID: 26338888 [PubMed - indexed for MEDLINE]

Stroke. 2015 Oct;46(10):2881-5.

Serum Leptin Levels and the Risk of Stroke: The Framingham Study.

Saber H, Himali JJ, Shoamanesh A, Beiser A, Pikula A, Harris TB, Roubenoff R, Romero JR, Kase CS, Vasan RS, Seshadri S.

BACKGROUND AND PURPOSE Leptin is a major adipokine that regulates weight balance and energy homeostasis. There is inconsistent evidence linking circulating leptin levels to risk of stroke. We tested the hypothesis that leptin levels are associated with risk of incident stroke in an elderly community based sample.

METHODS Serum leptin levels were assayed in 757 stroke free individuals (mean age, 79 years; 62% women) from the Framingham Original Cohort at the 22nd examination cycle (1990-1994). Incidence of all -stroke and ischemic stroke were prospectively ascertained.

RESULTS During a mean follow up of 10 years, 119 individuals developed stroke (99 ischemic strokes). In multivariable Cox regression models, log leptin levels were not associated with incidence of all -stroke or ischemic stroke (hazard ratios per SD increment in log leptin 0.90 [0.73-1.09] and 0.89 [0.72-1.11], respectively). The results were suggestive for potential effect modification by waist/hip ratio for the association between leptin and stroke (P=0.03). Adjusting for age, sex, and established stroke risk factors, analysis stratified by waist/hip ratio quartiles revealed a lower incidence of first-ever all-stroke and ischemic stroke associated with higher leptin levels among only subjects in the top waist/hip ratio quartile (hazard ratio, 0.64 [0.43, 0.95] versus 0.98 [0.77, 1.25] for incident all-stroke and 0.61 [0.39, 0.95] versus 0.96 [0.74, 1.26] for ischemic stroke).

CONCLUSIONS Leptin levels were not directly related to the risk of incident stroke overall but there was an inverse association with stroke in the top waist/hip ratio quartile. Further investigations are required to confirm these findings and explore possible mechanisms for the observed association.

PMCID: PMC4589501 [Available on 2016-10-01] - PMID: 26337973 [PubMed - indexed for MEDLINE]

Am J Med Sci. 2015 Oct;350(4):257-62.

Subclinical Atherosclerosis and Relationship With Risk Factors of Coronary Artery Disease in a Rural Population.

Mamudu HM(1), Paul T, Veeranki SP, Wang L, Panchal HB, Budoff M.

BACKGROUND Annually, over 150,000 cardiovascular events occur among individuals <65 years old in the United States, including asymptomatic ones. Coronary artery calcium (CAC), a subclinical marker of coronary artery disease (CAD), enhances risk stratification among asymptomatic individuals. This study assessed the prevalence of CAC in a rural population and determined relationships between traditional risk factors for CAD and CAC scores.

METHODS During January 2011 to December 2012, asymptomatic individuals from central Appalachia were screened for CAC in the largest tertiary cardiovascular institute. Based on Agatston scale, participants were grouped into 4 CAC scores: zero (CAC = 0), mild (CAC = 1-99), moderate (CAC = 100-399) and severe (CAC ≥ 400). Multinomial logistic regression was used to examine associations between potential risk factors of CAD and CAC score.

RESULTS Of 1,674 participants, 55.4% had positive CAC score (CAC > 0). Increasing age and being male were positively associated with higher CAC scores. Although there was significant association between mild CAC and hypertension and family history of CAD, moderate CAC was positively associated with smoking status. Except hypercholesterolemia and sedentary lifestyle, severe CAC was significantly associated with major health conditions (obesity, diabetes and hypertension), lifestyle (smoking) and family history of CAD.

CONCLUSIONS More than half of participants in the CAC screening had subclinical CAD (CAC score > 0). The association between CAC score and CAD risk factors suggests that education about subclinical atherosclerosis among asymptomatic individuals in this region with high cardiovascular disease prevalence is needed because CAC improves CAD risk stratification, and the knowledge of CAC enhances medication adherence and motivates individuals towards beneficial behavioral/lifestyle modification.

PMID: 26332729 [PubMed - indexed for MEDLINE]

Am J Med Sci. 2015 Oct;350(4):272-8.

Characteristics and Risk Factors of Out-of-Hospital Cardiac Arrest Within 72 Hours After Discharge.

Syue YJ(1), Yen YL, Cheng SY, Hung CW, Lin YR, Wu KH.

OBJECTIVE To determine the characteristics and risk factors for patients who developed out-of-hospital cardiac arrest (OHCA) within 72 hours after emergency department (ED) discharge.

METHODS A nested case-control study (1:4 ratio) was conducted in 5 EDs from January 2002 to December 2011. The study group consisted of adults experiencing nontraumatic OHCA who revisited ED within 72 hours after discharge. Patients matched in sex, age group and chief complaints were selected for the control group. Demographic data, discharge diagnosis, discharge vital signs and laboratory result were collected. Etiologies of cardiac arrest and whether the events were expected or related to the 1st ED visit were reviewed.

RESULTS In all, 1,657,870 patients were discharged during the study period; 109 developed OHCA within 72 hours of ED discharge (6.6/100,000 per year). The mean age was 64.7 years and 67.9% were men. After comparison with the control group, a higher heart rate (88.5 ± 18.23 versus 81.7 ± 15.93 beat per minutes, P = 0.003) and higher serum creatinine level (2.2 ± 2.30 versus 1.4 ± 1.38 mg/dL, P = 0.002) remain the statistical significant characteristics of study group by conditional logistic regression. Approximately 60% events were expected or unrelated to the 1st ED visit. Among patients whose OHCA were unexpected and related to the 1st ED visit, 71.4% had a cardiac cause. Of these, 20% had chest pain, but 40% had angina-equivalent symptoms during 1st presentation.

CONCLUSIONS A higher discharge heart rate and higher creatinine level are risk factors in these patients.

PMID: 26332728 [PubMed - indexed for MEDLINE]

Circulation. 2015 Oct 6;132(14):1320-8.

How Does Cardiovascular Disease First Present in Women and Men? Incidence of 12 Cardiovascular Diseases in a Contemporary Cohort of 1,937,360 People.

George J, Rapsomaniki E, Pujades-Rodriguez M, Shah AD, Denaxas S, Herrett E, Smeeth L, Timmis A, Hemingway H.

BACKGROUND Given the recent declines in heart attack and stroke incidence, it is unclear how women and men differ in first lifetime presentations of cardiovascular diseases (CVDs). We compared the incidence of 12 cardiac, cerebrovascular, and peripheral vascular diseases in women and men at different ages.

METHODS AND RESULTS We studied 1 937 360 people, aged ≥ 30 years and free from diagnosed CVD at baseline (51% women), using linked electronic health records covering primary care, hospital admissions, acute coronary syndrome registry, and mortality (Cardiovascular Research Using LInked Bespoke Studies and Electronic Records [CALIBER] research platform). During 6 years median follow-up between 1997 and 2010, 114 859 people experienced an incident cardiovascular diagnosis, the majority (66%) of which were neither myocardial infarction nor ischemic stroke. Associations of male sex with initial diagnoses of CVD, however, varied from strong (age-adjusted hazard ratios, 3.6-5.0) for abdominal aortic aneurysm, myocardial infarction, and unheralded coronary death (particularly >60 years), through modest (hazard ratio, 1.5-2.0) for stable angina, ischemic stroke, peripheral arterial disease, heart failure, and cardiac arrest, to weak (hazard ratio <1.5) for transient ischemic attack, intracerebral hemorrhage, and unstable angina, and inverse (0.69) for subarachnoid hemorrhage (all P<0.001).

CONCLUSIONS The majority of initial presentations of CVD are neither myocardial infarction nor ischemic stroke, yet most primary prevention studies focus on these presentations. Sex has differing associations with different CVDs, with implications for risk prediction and management strategies.

PMCID: PMC4590518 - PMID: 26330414 [PubMed - indexed for MEDLINE]

Am J Cardiol. 2015 Oct 15;116(8):1298-303.

Syphilis as a Cause of Thoracic Aortic Aneurysm.

Roberts WC, Barbin CM, Weissenborn MR Ko JM, Henry AC.

In 2009, we described morphologic findings in 22 patients having resection of an ascending aortic aneurysm in the previous 11 years at the Baylor University Medical Center, and histologic examination of the aneurysmal wall disclosed classic findings of syphilitic aortitis. The major purpose of that extensively illustrated report was to describe the characteristic gross features of the aneurysm such that syphilitic aortitis might be better recognized at operation and appropriate antibiotics administered postoperatively. The aim of the present study was to emphasize that syphilis remains a major cause of ascending aortic aneurysm. From January 1, 2009, to December 31, 2014, we studied additional 23 patients who had resection of an ascending aortic aneurysm that again histologically had classic features of syphilitic aortitis. All 23 patients were found to have syphilitic aortitis grossly and histologically. The aneurysm involved the ascending portion of aorta in all 23, the arch portion in 12, and the descending thoracic portion in 10. In conclusion, syphilis has far from disappeared. It remains a major cause of ascending aortic aneurysm.

PMID: 26307174 [PubMed - indexed for MEDLINE]

Lancet. 2015 Oct 31;386(10005):1739-46.

Long working hours and risk of coronary heart disease and stroke: a systematic review and meta-analysis of published and unpublished data for 603,838 individuals.

Kivimäki M, Jokela M, Nyberg ST, Singh-Manoux A, Fransson EI, Alfredsson L, Bjorner JB, Borritz M, Burr H, Casini A), Clays E, De Bacquer D, Dragano N, Erbel R, Geuskens GA, Hamer M, Hooftman WE, Houtman IL, Jöckel KH, Kittel F, Knutsson A , Koskenvuo M, Lunau T, Madsen IE, Nielsen ML, Nordin M, Oksanen T, Pejtersen JH, Pentti J, Rugulies R, Salo P, Shipley MJ, Siegrist J, Steptoe A, Suominen SB, Theorell T, Vahtera J, Westerholm PJ, Westerlund H, O'Reilly D, Kumari M, Batty GD, Ferrie JE, Virtanen M; IPD-Work Consortium.

BACKGROUND Long working hours might increase the risk of cardiovascular disease, but prospective evidence is scarce, imprecise, and mostly limited to coronary heart disease. We aimed to assess long working hours as a risk factor for incident coronary heart disease and stroke.

METHODS We identified published studies through a systematic review of PubMed and Embase from inception to Aug 20, 2014. We obtained unpublished data for 20 cohort studies from the Individual-Participant-Data Meta-analysis in Working Populations (IPD-Work) Consortium and open-access data archives. We used cumulative random-effects meta-analysis to combine effect estimates from published and unpublished data.

FINDINGS We included 25 studies from 24 cohorts in Europe, the USA, and Australia. The meta-analysis of coronary heart disease comprised data for 603,838 men and women who were free from coronary heart disease at baseline; the meta-analysis of stroke comprised data for 528,908 men and women who were free from stroke at baseline. Follow-up for coronary heart disease was 5·1 million person-years (mean 8·5 years), in which 4768 events were recorded, and for stroke was 3·8 million person-years (mean 7·2 years), in which 1722 events were recorded. In cumulative meta-analysis adjusted for age, sex, and socioeconomic status, compared with standard hours (35-40 h per week), working long hours (≥55 h per week) was associated with an increase in risk of incident coronary heart disease (relative risk [RR] 1·13, 95% CI 1·02-1·26; p=0·02) and incident stroke (1·33, 1·11-1·61; p=0·002). The excess risk of stroke remained unchanged in analyses that addressed reverse causation, multivariable adjustments for other risk factors, and different methods of stroke ascertainment (range of RR

estimates 1·30-1·42). We recorded a dose-response association for stroke, with RR estimates of 1·10 (95% CI 0·94-1·28; p=0·24) for 41-48 working hours, 1·27 (1·03-1·56; p=0·03) for 49-54 working hours, and 1·33 (1·11-1·61; p=0·002) for 55 working hours or more per week compared with standard working hours (ptrend<0·0001).

INTERPRETATION Employees who work long hours have a higher risk of stroke than those working standard hours; the association with coronary heart disease is weaker. These findings suggest that more attention should be paid to the management of vascular risk factors in individuals who work long hours.

FUNDING Medical Research Council, Economic and Social Research Council, European Union New and Emerging Risks in Occupational Safety and Health research programme, Finnish Work Environment Fund, Swedish Research Council for Working Life and Social Research, German Social Accident Insurance, Danish National Research Centre for the Working Environment, Academy of Finland, Ministry of Social Affairs and Employment (Netherlands), US National Institutes of Health, British Heart Foundation.

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Stroke. 2015 Oct;46(10):2722-7.

Prevalence and Risk Factors of Acute Incidental Infarcts.

Saini M, Suministrado MS, Hilal S, Dong YH, Venketasubramanian N, Ikram MK, Chen C
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BACKGROUND AND PURPOSE The study of silent stroke has been limited to imaging of chronic infarcts; acute incidental infarcts (AII) detected on brain magnetic resonance imaging have been less investigated. This study aims to describe prevalence and risk factors of AII in a community and a clinic-based population.

METHODS Subjects were drawn from 2 ongoing studies: Epidemiology of Dementia in Singapore study, which is a subsample from a population-based study, and a clinic-based case-control study. Subjects from both studies underwent similar clinical and neuropsychological assessments and brain magnetic resonance imaging. Prevalence of AII from these studies was determined. Subsequently, risk factors of AII were examined using multivariable logistic regression models.

RESULTS AII were seen in 7 of 623 (1.2%) subjects in Epidemiology of Dementia in Singapore (mean age, 70.9±6.8 years; 45% men) and in 12 of 389 (3.2%) subjects (mean age, 72.1±8.3 years; 46% men) in the clinic-based study. AII were present in 0.8% of subjects with no cognitive impairment, 1.9% of those with cognitive impairment not dementia, and 4.2% of subjects with dementia. Significant association of AII was found with cerebral microbleeds (≥5) in the Epidemiology of Dementia in Singapore (odds ratio, 6.76; 95% confidence interval, 1.28-35.65; P=0.02) and in the clinic-based cohort (odds ratio, 4.65; 95% confidence interval, 1.39-15.53; P=0.01). There was no association of AII with hypertension, diabetes mellitus, or hyperlipidemia.

CONCLUSIONS AII are more likely to be present in those with cognitive impairment. Although a cause-effect relationship between the presence of AII and cognitive impairment is plausible, the association may be because of under-reporting of symptoms by individuals with cognitive impairment. The association between AII and cerebral microbleeds may indicate cerebral vasculopathy, independent of traditional vascular risk factors.

PMID: 26294677 [PubMed - indexed for MEDLINE]

Stroke. 2015 Oct;46(10):2961-4.

Genetic Determinants of Unruptured Intracranial Aneurysms in the General Population.

Peymani A, Adams HH, Cremers LG, Krestin G, Hofman A, van Duijn CM, Uitterlinden AG, van der Lugt A, Vernooij MW, Ikram MA.

BACKGROUND AND PURPOSE Genome-wide association studies have identified single-nucleotide polymorphisms (SNPs) for intracranial aneurysms in clinical samples. In addition, SNPs have been discovered for blood pressure, one of the strongest risk factors for intracranial aneurysms. We studied the role of these genetic variants on occurrence and size of unruptured intracranial aneurysms, discovered incidentally in a general community-dwelling population.

METHODS In 4890 asymptomatic participants from the Rotterdam Study, 120 intracranial aneurysms were identified on brain imaging and segmented for maximum diameter and volume. Genetic risk scores (GRS) were calculated for intracranial aneurysms (10 SNPs), systolic blood pressure (33 SNPs), and diastolic blood pressure (41 SNPs).

RESULTS The GRS for intracranial aneurysms was not statistically significantly associated with presence of aneurysms in this population (OR, 1.16; 95% CI, 0.96-1.40; P=0.119), but showed a significant association with both maximum diameter (difference in log-transformed mm per SD increase of GRS, 0.10; 95% CI, 0.02-0.19; P=0.018) and volume (difference in log-transformed µL per SD increase of GRS, 0.21; 95% CI, 0.01-0.41; P=0.040) of aneurysms. GRSs for blood pressures were associated with neither presence nor size of aneurysms.

CONCLUSIONS Genetic variants previously identified for intracranial aneurysms in clinical studies relate to the size rather than the presence of incidentally discovered, unruptured intracranial aneurysms in the general population.

PMID: 26286545 [PubMed - indexed for MEDLINE]

J Clin Endocrinol Metab. 2015 Oct;100(10):3871-7.

Development of a Weighted Cardiometabolic Disease Staging (CMDS) System for the Prediction of Future Diabetes.

Guo F, Garvey WT.

CONTEXT Metabolic syndrome traits are important risk factors for diabetes; however, each trait has different predictive power for future diabetes. Additionally, the impact of insulin resistance on metabolic profile can differ by gender and racial group, suggesting that gender-race specific prediction algorithms for diabetes may be warranted.

OBJECTIVE To develop a quantitative scoring system based on weighting of risk components in the cardiometabolic disease staging (CMDS) system for the prediction of future diabetes.

DESIGN, SETTING, AND PARTICIPANTS We derived the CMDS score in 2857 participants with valid follow-up information on incident diabetes from the Coronary Artery Risk Development in Young Adults study and validated it in 6425 older participants from the Atherosclerosis Risk in Communities study. We assigned a simple integer value for each CMDS risk factor component.

MAIN OUTCOME MEASURES Incident diabetes.

RESULTS Fasting glucose, 2-hour glucose, waist circumference, and blood pressure components contributed similarly for the prediction of future diabetes (CMDS scores, 23, 21, 26, and 20, respectively). The area under the receiver operating characteristic curve was 0.7158 for the CMDS scoring system, whereas it was 0.7053 for the Framingham diabetes score. The CMDS components performed differently for prediction of future diabetes in Black and White men and women. The components with the highest predictive power for diabetes were waist circumference in Black men, 2-hour glucose in Black women, and fasting glucose in both White men and White women.

CONCLUSIONS The weighted CMDS score has high model discrimination power for diabetes and can be used clinically to identify patients for weight loss therapy based on differential risk for future diabetes.

PMCID: PMC4596035 [Available on 2016-10-01] - PMID: 26241327 [PubMed - indexed for MEDLINE]

Hypertension. 2015 Oct;66(4):843-9.

High salt intake: independent risk factor for obesity?

Ma Y, He FJ, MacGregor GA.

High salt intake is the major cause of raised blood pressure and accordingly leads to cardiovascular diseases. Recently, it has been shown that high salt intake is associated with an increased risk of obesity through sugar-sweetened beverage consumption. Increasing evidence also suggests a direct link. Our study aimed to determine whether there was a direct association between salt intake and obesity independent of energy intake. We analyzed the data from the rolling cross-sectional study-the UK National Diet and Nutrition Survey 2008/2009 to 2011/2012. We included 458 children (52% boys; age, 10±4 years) and 785 adults (47% men; age, 49±17 years) who had complete 24-hour urine collections. Energy intake was calculated from 4-day diary and misreporting was assessed by Goldberg method. The results showed that salt intake as measured by 24-hour urinary sodium was higher in overweight and obese individuals. A 1-g/d increase in salt intake was associated with an increase in the risk of obesity by 28% (odds ratio, 1.28; 95% confidence interval, 1.12-1.45; P=0.0002) in children and 26% (odds ratio, 1.26; 95% confidence interval, 1.16-1.37; P<0.0001) in adults, after adjusting for age, sex, ethnic group, household income, physical activity, energy intake, and diet misreporting, and in adults with additional adjustment for education, smoking, and alcohol consumption. Higher salt intake was also significantly related to higher body fat mass in both children (P=0.001) and adults (P=0.001) after adjusting for age, sex, ethnic group, and energy intake. These results suggest that salt intake is a potential risk factor for obesity independent of energy intake.

PMID: 26238447 [PubMed - indexed for MEDLINE]

Crit Care Med. 2015 Oct;43(10):2164-70.

Prevalence and Risk Factors of Stress Cardiomyopathy After Convulsive Status Epilepticus in ICU Patients.

Belcour D(1), Jabot J, Grard B, Roussiaux A, Ferdynus C, Vandroux D, Vignon P.

OBJECTIVE Although stress cardiomyopathy has been described in association with epilepsy, its frequency in patients with convulsive status epilepticus remains unknown. Accordingly, we sought to determine the prevalence and risk factors of stress cardiomyopathy in patients admitted to the ICU for convulsive status epilepticus.

DESIGN Prospective, descriptive, single-center study.

SETTING Medical-surgical ICU of a teaching hospital.

PATIENTS Thirty-two consecutive ventilated patients (21 men; age, 50 ± 18 yr; Simplified Acute Physiology Score II, 53 ± 15; Sequential Organ Failure Assessment, 6 ± 2) hospitalized in the ICU for convulsive status epilepticus.

INTERVENTIONS: None.

MEASUREMENTS AND MAIN RESULTS Hemodynamic parameters, transthoracic echocardiography, biological data, and electrocardiogram were obtained serially on ICU admission (H0), and after 6, 12, 24, and 48 hours of hospitalization (H6, H12, H24, and H48). Stress cardiomyopathy was defined as a 20% decrease in left ventricular ejection fraction between H0 or H6 and H48. Stress cardiomyopathy was diagnosed in 18 patients (56%; 95% CI, 38-74%). Mean left ventricular ejection fraction, left ventricular stroke index and cardiac index were initially (at H0 or H6 according to lowest individual values) significantly reduced in stress cardiomyopathy patients (45 ± 14% vs 61 ± 6%, $p < 0.001$; 24 ± 8 vs 28 ± 8 mL/m(2), $p < 0.05$; 2.3 ± 0.7 vs 3.0 ± 0.8 L/min/m(2), $p < 0.05$, respectively) and increased secondarily to reach similar mean values than those observed in patients without transient left ventricular dysfunction at H24. Dobutamine was more frequently used in patients with stress cardiomyopathy. Mean lactate level was increased and significantly higher in stress cardiomyopathy patients at H0 and H6, whereas mean central venous oxygen saturation was preserved but significantly lower in this group. Only three patients with stress cardiomyopathy

had left ventricular regional wall motion abnormalities but normal coronary angiography. Risk factors of stress cardiomyopathy were age and Simplified Acute Physiology Score II.

CONCLUSIONS These results suggest that stress cardiomyopathy is common in patients admitted to the ICU for convulsive status epilepticus. Accordingly, these patients should be screened for stress cardiomyopathy and monitored if they present with hemodynamic compromise.

PMID: 26237133 [PubMed - indexed for MEDLINE]

Metabolism. 2015 Oct;64(10):1224-34.

Risk of major adverse cardiovascular events in patients with metabolic syndrome after revascularization: A meta-analysis of eighteen cohorts with 18,457 patients.

Tie HT(1), Shi R(2), Li ZH(3), Zhang M(1), Zhang C(1), Wu QC(4).

OBJECTIVE To provide a comprehensive evaluation of the association between metabolic syndrome (MetS) and major adverse cardiovascular events (MACE) and to clarify the effect of revascularization methods among them in patients with coronary artery disease (CAD) undergoing successful revascularization.

METHODS PubMed and Embase databases were searched. Cohort studies evaluating the association between MetS and risk of MACE and providing the hazard ratio (HR) with 95% confidence interval (CI) or sufficient data to calculate HR and its 95%CI among patients after revascularization were included. The pooled estimates were performed by using a random-effects model despite heterogeneity. Subgroup and sensitivity analyses were also conducted adherence to guidelines.

RESULTS Eighteen trials with 18457 patients were included. Overall, MetS was associated with significant increased risks of MACE (HR 1.47, 95%CI 1.26-1.72, I(2)=46.4%, PH=0.016, P<0.001) and all-cause mortality (HR 1.58, 95%CI 1.29-1.92, I(2)=45.6%, PH=0.075, P<0.001) in CAD patients received revascularization. The results remained stable and robust in our subgroup analysis. However, no significant increased risk of MACE or all-cause mortality was found in patients undergoing coronary artery bypass graft (CABG) or drug-eluting stent (DES) in the sensitivity analysis.

CONCLUSION MetS was associated with increased risks of MACE and all-cause mortality in patients after revascularization, but not in patients receiving CABG or DES. Therefore, prevention and treatment of MetS are extremely necessary in patients undergoing revascularization. Moreover, CABG and DES should be recommended for CAD patients with MetS and future researches are still warranted.

PMID: 26231436 [PubMed - indexed for MEDLINE]

J Acad Nutr Diet. 2015 Oct;115(10):1682-9.e2.

The Healthy Beverage Index Is Associated with Reduced Cardiometabolic Risk in US Adults: A Preliminary Analysis.

Duffey KJ, Davy BM.

BACKGROUND AND OBJECTIVE Beverage recommendations exist, but few evaluate overall beverage intake quality. Our objective was to develop a scoring algorithm for assessing beverage intake quality among US adults (aged ≥19 years), and to examine the association between overall beverage quality and cardiometabolic risk.

DESIGN: We developed a scoring algorithm, similar to the Healthy Eating Index-2010, using recommendations for total beverage energy, meeting fluid requirements, and consuming within recommended limits for beverage subgroups (eg, low-fat milk, fruit juice). Multiple scoring systems were evaluated. The final scoring system, which consisted of 10 components, was applied to the average of 2 days of 24-hour dietary intake data for adults (aged ≥19 years) from the National Health and Nutrition Examination Survey (NHANES), 2005-2010.

STATISTICAL ANALYSES PERFORMED Poisson regression models stratified by sex and body mass index multivariables were used to examine the cross-sectional association between the Healthy Beverage Index (HBI) score and cardiometabolic
outcomes.

RESULTS The 10-item index had a mean±standard deviation score of 63±16 from a possible 100 points. Each 10-point higher HBI score was associated with lower odds ratios for hypertension (men and women); high fasting insulin level, high fasting glucose level, and high low-density lipoprotein cholesterol level (women and overweight/obese men), low high-density lipoprotein cholesterol level (women), and high C-reactive protein level (men).

CONCLUSIONS We found positive associations between higher HBI scores and more favorable lipid profiles; hypertension risk; and, among men, C-reactive protein levels. These preliminary results suggest that the HBI could be a valuable tool to evaluate overall beverage intake quality in adults. More research is needed to understand whether improvements in beverage quality and, thus, HBI score, are associated with beneficial changes in health.

PMID: 26184445 [PubMed - indexed for MEDLINE]

Autoimmun Rev. 2015 Oct;14(10):952-69.

Prevention of cardiovascular disease in rheumatoid arthritis.

Hollan I, Dessein PH, Ronda N, Wasko MC, Svenungsson E, Agewall S, Cohen-Tervaert JW, Maki-Petaja K, Grundtvig M, Karpouzas GA, Meroni PL.

The increased risk of cardiovascular disease (CVD) in rheumatoid arthritis (RA) has been recognized for many years. However, although the characteristics of CVD and its burden resemble those in diabetes, the focus on cardiovascular (CV) prevention in RA has lagged behind, both in the clinical and research settings. Similar to diabetes, the clinical picture of CVD in RA may be atypical, even asymptomatic. Therefore, a proactive screening for subclinical CVD in RA is warranted. Because of the lack of clinical trials, the ideal CVD prevention (CVP) in RA has not yet been defined. In this article, we focus on challenges and controversies in the CVP in RA (such as thresholds for statin therapy), and propose recommendations based on the current evidence. Due to the significant contribution of non-traditional, RA-related CV risk factors, the CV risk calculators developed for the general population underestimate the true risk in RA. Thus, there is an enormous need to develop adequate CV risk stratification tools and to identify the optimal CVP strategies in RA. While awaiting results from randomized controlled trials in RA, clinicians are largely dependent on the use of common sense, and extrapolation of data from studies on other patient populations. The CVP in RA should be based on an individualized evaluation of a broad spectrum of risk factors, and include: 1) reduction of inflammation, preferably with drugs decreasing CV risk, 2) management of factors associated with increased CV risk (e.g., smoking, hypertension, hyperglycemia, dyslipidemia, kidney disease, depression, periodontitis, hypothyroidism, vitamin D deficiency and sleep apnea), and promotion of healthy life style (smoking cessation, healthy diet, adjusted physical activity, stress management, weight control), 3) aspirin and influenza and pneumococcus vaccines according to current guidelines, and 4) limiting use of drugs that increase CV risk. Rheumatologists should take responsibility for the education of health care providers and RA patients regarding CVP in RA. It is immensely important to incorporate CV outcomes in testing of anti-rheumatic drugs.

PMID: 26117596 [PubMed - indexed for MEDLINE]

Heart. 2015 Oct;101(20):1627-30.

Physical activity is associated with a reduced risk of atrial fibrillation in middle-aged and elderly women.

Drca N(1), Wolk A(2), Jensen-Urstad M(1), Larsson SC(2).

OBJECTIVE: Previous studies have found that regular participation in intense physical activity increases the risk of developing atrial fibrillation (AF) in men, but it remains unclear how physical activity influences the risk of AF in women. We aimed to examine whether physical activity of different types and at different ages influences the development of AF in women.

METHODS In the population-based Swedish Mammography Cohort, information about physical activity was obtained from 36 513 AF-free women (49-83 years old, median age 60 years) who had completed a questionnaire at study entry (1997). Participants reported their time spent on leisure-time exercise and on walking or bicycling throughout their lifetime (at study entry, and at 30 and 50 years of age). We used the Swedish National Inpatient Register (IPR) to determine whether the participants were diagnosed with AF. Cox proportional hazards regression models were used to estimate relative risks (RR) with 95% CI, adjusted for potential confounders.

RESULTS During a median follow-up of 12 years (10th percentile 7.5 years, 90th percentile 12.0 years), 2915 cases of AF were diagnosed. The risk of AF decreased with increasing levels of leisure-time exercise at study entry (RR 0.85, 95% CI 0.75 to 0.95 for ≥4 h/week vs <1 h/week) and walking/bicycling (RR 0.81, 95% CI 0.72 to 0.92, for ≥40 min/day vs almost never).

CONCLUSIONS Physical activity is associated with a reduced risk of AF in women. Moderate amount of physical activity was sufficient to significantly reduce AF risk.

PMID: 26019224 [PubMed - indexed for MEDLINE]

Arch Gynecol Obstet. 2015 Nov;292(5):1043-50.

Maternal plasma TIMP-4 levels combined with clinical risk factors for the early prediction of pregnancy-induced hypertension.

Zhang Y, Ma Q, Yang H, Long Y, Liu X, Zhou C.

OBJECTIVE The objective of this study was to create a model for early predicting pregnancy-induced hypertension (PIH) using plasma markers and clinical risk factors.

METHODS A nested case-control study was performed at the Laboratory Department of Guangzhou Women and Children's Medical Center. From a prospective cohort of tens of thousands of unselected women with singleton pregnancies at 8-20 weeks gestation, maternal plasma samples were obtained from 73 women who subsequently developed PIH (PIH group) and 146 gestational age- and maternal age-matched women with normotensive pregnancies (control group). Proteins extracted from the plasma samples were screened by microchip and verified by ELISA. Clinical risk factor data were analyzed retrospectively.

RESULTS Compared to the control group, high concentrations of tissue inhibitor of metalloproteinase-4 (TIMP-4) were found in women with PIH ($P = 0.000$). Univariate risk factor analysis identified three variables with significant differences between the groups: family history of PIH ($P = 0.031$), body mass index (BMI; $P < 0.001$), and non-glucose-6-phosphate dehydrogenase deficiency-induced anemia ($P < 0.027$). Multiple regression analyses revealed a significant relationship of PIH with TIMP-4 levels, BMI, and family history (combined area under the receiver operating characteristic curve = 0.820).

CONCLUSION Upregulation of plasma TIMP-4 might contribute to PIH processes. Potential risk factors of this disease may include a family history of PIH and BMI. The combination of TIMP-4 levels and these risk factors may have some predictive values for PIH. Future multicenter studies including greater numbers of samples, analyzed proteins, and risk factors are needed to obtain a higher predictive value of the model for the clinical diagnosis of PIH.

PMID: 25986893 [PubMed - indexed for MEDLINE]

Am J Kidney Dis. 2015 Oct;66(4):602-12.

A Meta-analysis of the Association of Estimated GFR, Albuminuria, Diabetes Mellitus, and Hypertension With Acute Kidney Injury.

James MT, Grams ME, Woodward M, Elley CR, Green JA, Wheeler DC, de Jong P, Gansevoort RT, Levey AS, Warnock DG, Sarnak MJ; CKD Prognosis Consortium.

BACKGROUND Diabetes mellitus and hypertension are risk factors for acute kidney injury (AKI). Whether estimated glomerular filtration rate (eGFR) and urine albumin-creatinine ratio (ACR) remain risk factors for AKI in the presence and absence of these conditions is uncertain.

STUDY DESIGN Meta-analysis of cohort studies.

SETTING & POPULATION 8 general-population (1,285,045 participants) and 5 chronic kidney disease (CKD; 79,519 participants) cohorts.

SELECTION CRITERIA FOR STUDIES Cohorts participating in the CKD Prognosis onsortium.

PREDICTORS Diabetes and hypertension status, eGFR by the 2009 CKD Epidemiology Collaboration creatinine equation, urine ACR, and interactions.

OUTCOME Hospitalization with AKI, using Cox proportional hazards models to estimate HRs of AKI and random-effects meta-analysis to pool results.

RESULTS During a mean follow-up of 4 years, there were 16,480 episodes of AKI in the general-population and 2,087 episodes in the CKD cohorts. Low eGFRs and high ACRs were associated with higher risks of AKI in individuals with or without diabetes and with or without hypertension. When compared to a common reference of eGFR of 80mL/min/1.73m(2) in nondiabetic patients, HRs for AKI were generally higher in diabetic patients at any level of eGFR. The same was true for diabetic patients at all levels of ACR compared with nondiabetic patients. The risk gradient for AKI with lower eGFRs was greater in those without diabetes than with diabetes, but similar with higher ACRs in those without versus with diabetes. Those with hypertension had a higher risk of AKI at eGFRs>60mL/min/1.73m(2) than those without hypertension. However, risk gradients for AKI with both lower eGFRs and higher ACRs were greater for those without than with hypertension.

LIMITATIONS AKI identified by diagnostic code.

CONCLUSIONS Lower eGFRs and higher ACRs are associated with higher risks of AKI among individuals with or without either diabetes or hypertension.

PMCID: PMC4594211 - PMID: 25975964 [PubMed - indexed for MEDLINE]

Chest. 2015 Oct;148(4):945-52.

Severity of OSA is an independent predictor of incident atrial fibrillation hospitalization in a large sleep-clinic cohort.

Cadby G, McArdle N, Briffa T, Hillman DR, Simpson L, Knuiman M, Hung J.

BACKGROUND OSA is a common condition that has been associated with atrial fibrillation (AF), but there is a paucity of data from large longitudinal cohorts to establish whether OSA is a risk factor for AF independent of obesity and other established risk factors.

METHODS We studied patients attending a sleep clinic referred for in-laboratory polysomnography for possible OSA between 1989 and 2001. Whole-population hospital data in Western Australia for 1970 to 2009 were linked to sleep study cases to determine incident AF hospitalization to 2009. Cox regression analyses were used to assess the independent association of OSA with incident AF.

RESULTS Study case subjects (6,841) were predominantly middle aged (48.3 ± 12.5 years old) and men (77%), and 455 developed AF during a median 11.9 years of follow-up. Univariate predictors of AF included age, BMI, hypertension, diabetes, valvular heart disease, coronary or peripheral artery disease, heart failure, and COPD (all P < .001). After multivariable adjustment, independent predictors of incident AF were an apnea/hypopnea index (AHI) > 5/h (hazard ratio [HR], 1.55; 95% CI, 1.21-2.00), log (AHI + 1) (HR, 1.15; 95% CI, 1.06-1.26), and log (time with oxygen saturation < 90% + 1) (HR, 1.12; 95% CI, 1.06-1.19). There were no interactions between age, sex, or BMI and AHI for AF development.

CONCLUSIONS OSA diagnosis and severity are independently associated with incident AF. Clinical trials are required to determine if treatment of OSA will reduce the burden of AF.

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Angiology. 2015 Nov;66(10):904-10.

The Association of Elevated HDL Levels With Carotid Atherosclerosis in Middle-Aged Women With Untreated Essential Hypertension.

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High-density lipoprotein cholesterol (HDL-C), a negative risk factor, is positively associated with a decreased risk of coronary heart disease. We investigated the association between high HDL-C levels and target organ damage (TOD) in never treated women with hypertension. We measured HDL-C levels in 117 women followed by estimation of TODs, that is, pulse wave velocity, microalbuminuria, left ventricular mass index, coronary flow reserve, and carotid intima-media thickness (cIMT). Women were divided into 2 groups (HDLH and HDLL), regarding HDL-C quartiles (upper quartile vs the first 3 lower quartiles). In HDLH group : HDL ≥70 mg/dL), cIMT was nonindependently, negatively related to HDL-C (ρ = -.42, P < .05). Using receiver - operating characteristic curve (ROC) analysis in the HDLH group, we concluded that the cutoff value of HDL ≥76.5 mg/dL moderately predicted the absence of carotid atherosclerosis (area under the curve: 0.77, P = .02; confidence interval: 0.57-0.97; sensitivity 73% and specificity 67%). Increased HDL-C may predict the absence of carotid atherosclerosis in middle-age women with untreated essential hypertension and consequently contribute to total cardiovascular risk estimation and treatment planning.

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Hot flushes and night sweats are associated with coronary heart disease risk in midlife: a longitudinal study.

Herber-Gast G, Brown WJ, Mishra GD.

OBJECTIVE The purpose of this study was to investigate associations between vasomotor menopausal symptoms (VMS), i.e. hot flushes and night sweats, and the incidence of coronary heart disease (CHD).

DESIGN A prospective cohort study.

SETTING AND POPULATION 11 725 women, aged 45-50 years at baseline in 1996, were followed up at 3-year intervals for 14 years.

METHODS Self-reported VMS and incident CHD were measured at each survey.

MAIN OUTCOME MEASURE We determined the association between VMS and CHD at the subsequent survey, using generalised estimating equation analysis, adjusting for time-varying covariates.

RESULTS: At baseline, 14% reported rarely, 17% reported sometimes, and 7% reported often having night sweats. During follow-up, 187 CHD events occurred. In the age-adjusted analysis, women who reported their frequency of experiencing hot flushes and night sweats as 'often' had a greater than two-fold increased odds of CHD (OR hot flushes 2.18, 95% CI 1.49-3.18; OR night sweats 2.38, 95% CI 1.62-3.50) compared with women with no symptoms (P trend < 0.001 for frequency of symptoms). Adjustment for menopausal status, lifestyle factors, body mass index, diabetes, and hypertension attenuated the associations (OR hot flushes 1.70, 95% CI 1.16-2.51, P trend = 0.01; OR night sweats 1.84, 95% CI 1.24-2.73), P trend = 0.004).

CONCLUSIONS: Women who report having hot flushes or night sweats 'often' have an increased risk of developing CHD over a period of 14 years, even after taking the effects of age, menopause status, lifestyle, and other chronic disease risk factors into account.

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Attenuating the mortality risk of high serum uric acid: the role of physical activity underused.

Chen JH, Wen CP, Wu SB, Lan JL, Tsai MK, Tai YP, Lee JH, Hsu CC, Tsao CK, Wai JP, Chiang PH, Pan WH, Hsiung CA.

BACKGROUND High serum uric acid (sUA) has been associated with increased mortality risks, but its clinical treatment varied with potential side effects. The role of physical activity has received limited attention.

METHODS A cohort, consisting of 467 976 adults, who went through a standard health screening programme, with questionnaire and fasting blood samples, was successively recruited between 1996 and 2008. High sUA is defined as uric acid above 7.0 mg/dL. Leisure time physical activity level was self-reported, with fully active defined as those with 30 min per day for at least 5 days a week. National death file identified 12 228 deaths with a median follow-up of 8.5 years. Cox proportional model was used to analyse HRs, and 12 variables were controlled, including medical history, life style and risk factors.

FINDINGS High sUA constituted one quarter of the cohort (25.6%). Their all-cause mortality was significantly increased [HR: 1.22 (1.15-1.29)], with much of the increase contributed to by the inactive (HR: 1.27 (1.17-1.37)), relative to the reference group with sUA level of 5-6 mg/dL. When they were fully active, mortality risks did not increase, but decreased by 11% (HR: 0.89 (0.82-0.97)), reflecting the benefits of being active was able to overcome the adverse effects of high sUA. Given the same high sUA, a 4-6 years difference in life expectancy was found between the active and the inactive.

CONCLUSIONS Physical activity is a valuable alternative to pharmacotherapy in its ability to reduce the increases in mortality risks from high sUA. By being fully active, exercise can extend life span by 4-6 years, a level greater than the 1-4 years of life-shortening effect from high sUA.

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Increased burden of inflammation over time is associated with the extent of atherosclerotic plaques in patients with psoriatic arthritis.

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AIM To investigate whether a higher burden of inflammation is associated with more severe atherosclerosis in patients with psoriatic arthritis (PsA).

METHODS Patients from a large PsA cohort were analysed. The cumulative effect of inflammation was measured by a time-adjusted arithmetic mean of all measurements from the first visit to the clinic. The following variables were considered as predictors: Psoriasis Activity and Severity Index (PASI), erythrocyte sedimentation rate (ESR), white blood cell (WBC) count, tender and swollen joint counts, C-reactive protein, Psoriatic Arthritis Disease Activity Score (PASDAS) and Disease Activity for PsA (DAPSA). Vascular ultrasound of the carotid arteries was performed, and total plaque area was measured. This measure represented the extent of atherosclerosis and was considered the outcome of interest. The association between inflammation over time and atherosclerosis was assessed by regression models adjusted for age, sex and cardiovascular risk factors.

RESULTS A total of 235 patients with PsA were analysed. Patients with more severe atherosclerosis were older ($p<0.001$), more likely to be obese ($p=0.01$), smokers ($p=0.008$) and have hypertension ($p=0.001$), diabetes ($p<0.0001$) and dyslipidaemia ($p<0.0001$). In a multivariate regression model adjusted for age and sex, higher ESR ($p=0.009$), WBC count ($p=0.015$) and DAPSA ($p=0.04$) were associated with more severe atherosclerosis. These associations were not significant after adjustment for traditional cardiovascular risk factors. No association was found between disease duration and atherosclerosis.

CONCLUSIONS Exposure to an increased burden of inflammation is associated with more severe atherosclerosis in patients with PsA. This association may be mediated by traditional cardiovascular risk factors.

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