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

SERVIÇO DE INFORMAÇÃO CIENTÍFICA

A informação ao serviço da saúde

Dos Factores de Risco à Reabilitação das Doenças Vasculares

Julho - Agosto - Setembro 2016

Para pedir documentação sobre outros temas, clique em: www.sanofi.pt

SAPT.SA.16.11.0490

SANOFI

Índice

Iran J Kidney Dis. 2016 Sep;10(5):274-281.

A Challenging Interaction of Chronic Kidney Disease With Other Metabolic Disorders: Paradoxes in Cardiometabolic Risk Factors.

Panahi MH, Hadaegh F, Yavari P, Kazempour-Ardebili S, Mehrabi Y, Azizi F, Khalili D.

INTRODUCTION: Controversial findings are reported on the risk of cardiovascular disease in chronic kidney disease (CKD). There are some interactions between CKD and other metabolic disorders including metabolic syndrome (MS) and obesity regarding coronary heart disease (CHD) outcomes.

MATERIALS AND METHODS: A total of 2823 men and 3684 women aged 30 years and older, without cardiovascular disease, were followed for 10 years. Multivariable adjusted hazard ratio of CHD was estimated for those who developed CKD, MS or both by sex and body mass index levels below and above 27 kg/m2. The interaction term of CKD and MS and also CKD-MS components were assessed in the Cox proportional hazard models as well.

RESULTS: Chronic kidney disease without MS, showed a significant effect on CHD only in participants with low body mass index (hazard ratio, 2.06; 95% confidence interval, 1.28 to 3.31 in the men and hazard ratio, 2.56; 95% confidence interval, 1.04 to 6.31 in the women). The joint effect of CKD and MS decreased to one-third of their multiplicative effect in this subgroup, indicating a negative interaction between CKD, MS, and Obesity. The same interaction was observed between CKD and hypertension in both sexes and CKD and type 2 diabetes mellitus in the men.

CONCLUSIONS: Our results showed that CKD was an independent risk factor for CHD only in nonobese individuals; however, its risk was wiped out when joined to MS. Following the concept of "obesity paradox," the term of "risk factors paradox" also needs more attention.

PMID: 27721225 [PubMed - in process]

Nutrition. 2016 Aug 9. pii: S0899-9007(16)30164-2.

Inflammatory and metabolic responses to dietary intervention differ among individuals at distinct cardiometabolic risk levels.

Monfort-Pires M, Ferreira SR.

OBJECTIVE: The aim of this study was to investigate the effects of two interventions in breakfast with different fatty acid content on metabolic and inflammatory biomarkers in individuals at different cardiovascular risk levels. METHODS: This crossover clinical trial included 80 overweight participants who were grouped according to the presence of metabolic syndrome (MetS). The participants received two isocaloric breakfast interventions for 4 wk, with a 2-wk washout. The "Brazilian" breakfast was enriched with saturated fat, whereas the "modified" meal was enriched with unsaturated fatty acids and fibers. Repeated-measures analysis of variance was used to compare dietary data, and Student's t or Wilcoxon tests were used to compare clinical and inflammatory variables. A $\chi(2)$ test was employed to compare frequencies.

RESULTS: Frequencies of MetS increased after the Brazilian breakfast and decreased after the modified meal. Significant reduction in mean values of WC and diastolic blood pressure (DBP) and elevation in high-density lipoprotein cholesterol were detected at the end of the modified intervention. Participants with or without the MetS exhibited contrasting responses to the modified breakfast: respectively, significant changes in DBP levels (-3.7 ± 6.9 versus -0.5 ± 6.9 mm Hg; $P < 0.05$), plasma glucose (-3 ± 7.3 versus 3 ± 7.4 mg/dL; $P < 0.05$), and apolipoprotein-B (-0.1 ± 0.6 versus 0.2 ± 0.3 mg/mL; $P < 0.05$), interferon-γ (-0.6 ± 1.2 versus 0.1 ± 1.3 pg/mL; $P < 0.05$), and tumor necrosis factor-α concentrations (0.4 ± 3.6 versus -0.8 ± 2.8 pg/mL; $P < 0.05$) were observed.

CONCLUSIONS: Dietary intervention of small magnitude, for a short period, was able to improve traditional risk factors for cardiovascular disease and inflammatory markers, as well as the frequency of MetS. Responses to dietary interventions of individuals at different levels of cardiovascular risk should be examined through different biomarkers.

DOI: 10.1016/j.nut.2016.07.021
PMID: 27720273 [PubMed - as supplied by publisher]

Int J Cardiol. 2016 Sep 28;225:23-29.

Life-course risk factor levels and coronary artery calcification. The Cardiovascular Risk in Young Finns Study.

Hartiala O, Kajander S, Knuuti J, Ukkonen H, Saraste A, Rinta-Kiikka I, Kainulainen S, Kähönen M, Hutri-Kähönen N, Laitinen T, Lehtimäki T, Viikari JS, Hartiala J, Juonala M), Raitakari OT), Magnussen CG.

BACKGROUND: Risk factors measured in early life have been shown to predict coronary artery calcium (CAC) in adulthood. However, limited data exist on when risk factor profiles of those who develop CAC diverge from those who do not. We investigated the associations of coronary heart disease risk factor trajectories beginning in adolescence and CAC measured at middle-age.

METHODS: CAC was measured among 589 participants aged 39-45years in whom cardiovascular risk factors (serum lipids, blood pressure, body mass index, physical activity, smoking habits, and fruit, vegetable, fish, and butter intake) had been collected in 1980, 1983, 1986, 2001, and 2007 as part of the Cardiovascular Risk in Young Finns Study.

RESULTS: Mean levels of low-density lipoprotein cholesterol (LDL-C), total cholesterol, apolipoprotein B (Apo-B), and systolic blood pressure (SBP) levels across the 27-year period were significantly higher among those with CAC vs. those without. The difference between the groups was 0.25mmol/l (95% confidence interval, 95%CI, 0.079-0.41) for LDL-C, 0.26mmol/l (95%CI 0.080-0.44) for total cholesterol, 0.05mmol/l (95%CI 0.0085-0.091) for Apo-B and 1.92mmHg (95%CI 0.10-3.74) for SBP after adjustment for other risk factors. Those with CAC at age 39-45years had higher serum lipid levels already in adolescence or early adulthood compared with those without CAC, with these differences becoming more pronounced during the life-course.

CONCLUSIONS: Long-time risk factor exposure to higher LDL-C, total cholesterol and Apo-B levels already starting in adolescence and higher SBP levels in adulthood is associated with CAC at middle-age.

DOI: 10.1016/j.ijcard.2016.09.080
PMID: 27697667 [PubMed - as supplied by publisher]

Atherosclerosis. 2016 Sep 22. pii: S0021-9150(16)31393-4.

The role of miRNAs in cardiovascular disease risk factors.

Jones Buie JN, Goodwin AJ, Cook JA, Halushka PV, Fan H.

Coronary artery disease and atherosclerosis are complex pathologies that develop over time due to genetic and environmental factors. Differential expression of miRNAs has been identified in patients with coronary artery disease and atherosclerosis, however, their association with cardiovascular disease risk factors, including hyperlipidemia, hypertension, obesity, diabetes, lack of physical activity and smoking, remains unclear. This review examines the role of miRNAs as either biomarkers or potential contributors to the pathophysiology of these aforementioned risk factors. It is intended to provide an overview of the published literature which describes alterations in miRNA levels in both human and animal studies of cardiovascular risk factors and when known, the possible mechanism by which these miRNAs may exert either beneficial or deleterious effects. The intent of this review is engage clinical, translational, and basic scientists to design future collaborative studies to further elucidate the potential role of miRNAs in cardiovascular diseases.

PMID: 27693002 [PubMed - as supplied by publisher]

Atherosclerosis. 2016 Sep 13;254:35-41.

Genetic analysis of emerging risk factors in coronary artery disease.

van Iperen EP, Sivapalaratnam S, Holmes MV, Hovingh GK, Zwinderman AH, Asselbergs FW.

BACKGROUND AND AIMS: Type 2 diabetes (T2D), low-density lipoprotein-cholesterol (LDL-c), body mass index (BMI), blood pressure and smoking are established risk factors that play a causal role in coronary artery disease (CAD). Numerous common genetic variants associating with these and other risk factors have been identified, but their association with CAD has not been comprehensively examined in a single study. Our goal was to comprehensively evaluate the associations of established and emerging risk factors with CAD using genetic variants identified from Genome-wide Association Studies (GWAS).

METHODS: We tested the effect of 60 traditional and putative risk factors with CAD, using summary statistics obtained in GWAS. We approximated the regression of a response variable onto an additive multi-SNP genetic risk score in the Coronary Artery DIsease Genomewide Replication And Meta-analysis (CARDIoGRAM) consortium dataset weighted by the effect of the SNP on the risk factors.

RESULTS: The strongest association with risk of CAD was for LDL-c SNPs (p = 3.96E-34). For non-established CAD risk factors, we found significant CAD associations for coronary artery calcification (CAC), Lp(a), LP-PLA2 activity, plaque, vWF and FVIII. In an attempt to identify independent associations between risk factors and CAD, only SNPs with an effect on the target trait were included. This identified CAD associations for Lp(a)(p = 1.77E-21), LDL-c (p = 4.16E-06), triglycerides (TG) (p = 1.94E-05), height (p = 2.06E-05), CAC (p = 3.13E-23) and carotid plaque (p = 2.08E-05).

CONCLUSIONS: We identified SNPs associated with the emerging risk factors Lp(a), TG, plaque, height and CAC to be independently associated with risk of CAD. This provides further support for-ongoing clinical trials of Lp(a) and TG, and suggests that CAC and plaque could be used as surrogate markers for CAD in clinical trials.

PMID: 27684604 [PubMed - as supplied by publisher]

J Clin Lipidol. 2016 Sep-Oct;10(5):1129-1136.e3.

The very high cardiovascular risk in heterozygous familial hypercholesterolemia: Analysis of 734 French patients.

Béliard S, Millier A, Carreau V, Carrié A, Moulin P, Fredenrich A, Farnier M, Luc G, Rosenbaum D, Toumi M, Bruckert E; French FH Registry group.

BACKGROUND: Heterozygous familial hypercholesterolemia (heFH) is a genetic disease causing high levels of low-density lipoprotein cholesterol (LDL-C). Although this population is at high cardiovascular (CV) risk, the risk is variable within patients depending on additional risk factors. CV disease risk groups have been defined by the Nouvelle Société Francophone d'Athérosclérose (NSFA) and by the National Lipid Association recommendations.
OBJECTIVES: The study aimed to describe a sample of French heFH patients, comparing patients at very high risk (VHR) and patients at high risk in terms of demographic and clinical characteristics as well as biological measurements and disease management.
METHODS: Cross-sectional retrospective analysis on 734 patients hospitalized after 2005 in 5 academic centers.
RESULTS: When considering NSFA classification, 550 (74.9%) patients belonged to the VHR group. Most patients in the VHR group presented more than 1 risk factor, the most prevalent ones being Lp(a) > 50 mg/dL and smoking. Patients in the VHR group were older (50.6 vs 45.0 years old, P = .0002), and presented a higher body mass index (25.5 kg/m(2) vs 23.3 kg/m(2), P < .0001). The proportion of patients with carotid arterial plaque was higher in the VHR group (59.8% vs 48.6%, P = .06). Total cholesterol (2.41 g/L on average) and LDL-C (1.65 g/L on average) were not found to be significantly different. Maximum level of lipid-lowering treatments were used in 34% of cases in the VHR group, significantly higher than 16% in the high-risk group (P = .001). Very similar results were found when using the National Lipid Association recommendations.
CONCLUSION: This study provides a detailed description of French heFH patients according to their CV risk. Patients with very high CV risk had usually more advanced carotid plaques and were treated with heavier lipid-lowering drugs although their LDL-C level remained similar. This highlights the significant burden of this population.

PMID: 27678429 [PubMed - in process]

Eur J Prev Cardiol. 2016 Sep 26. pii: 2047487316670918. [Epub ahead of print]

Association of depression and anxiety status with 10-year cardiovascular disease incidence among apparently healthy Greek adults: The ATTICA Study.

Kyrou I, Kollia N, Panagiotakos D, Georgousopoulou E, Chrysohoou C, Tsigos C, Randeva S, Yannakoulia M, Stefanadis C, Papageorgiou C, Pitsavos C; ATTICA Study investigators.

BACKGROUND: Chronic stress frequently manifests with anxiety and/or depressive symptomatology and may have detrimental cardiometabolic effects over time. As such, recognising the potential links between stress-related psychological disorders and cardiovascular disease (CVD) is becoming increasingly important in cardiovascular epidemiology research. The primary aim of this study was to explore prospectively potential associations between clinically relevant depressive symptomatology and anxiety levels and the 10-year CVD incidence among apparently healthy Greek adults.
DESIGN: A population-based, health and nutrition prospective survey.
METHODS: In the context of the ATTICA Study (2002-2012), 853 adult participants without previous CVD history (453 men (45±13 years) and 400 women (44±18 years)) underwent psychological evaluations through validated, self-reporting depression and anxiety questionnaires.
RESULTS: After adjustment for multiple established CVD risk factors, both reported depression and anxiety levels were positively and independently associated with the 10-year CVD incidence, with depression markedly increasing the CVD risk by approximately fourfold (adjusted odds ratio (95% confidence interval) 3.6 (1.3, 11) for depression status; 1.03 (1.0, 1.1) for anxiety levels).
CONCLUSIONS: Our findings indicate that standardised psychological assessments focusing on depression and anxiety should be considered as an additional and distinct aspect in the context of CVD preventive strategies that are designed and implemented by health authorities at the general population level.

PMID: 27671771 [PubMed - as supplied by publisher]

J Am Geriatr Soc. 2016 Sep 26.

Racial Differences in the Incidence of Cardiovascular Risk Factors in Older Black and White Adults.

Howard G, Safford MM, Moy CS, Howard VJ, Kleindorfer DO, Unverzagt FW, Soliman EZ, Flaherty ML, McClure LA, Lackland DT, Wadley VG, Pulley L, Cushman M.

OBJECTIVES: To describe the incidence of cardiovascular risk factors, or race-related disparities in incidence, across the age spectrum in adults.
DESIGN: Longitudinal cohort.
SETTING: National sample.
PARTICIPANTS: Community-dwelling black and white adults recruited between 2003 and 2007.
MEASUREMENTS: Incident hypertension, diabetes mellitus, dyslipidemia and atrial fibrillation over 10 years of follow-up in 10,801 adults, stratified according to age (45-54, 55-64, 65-74, ≥75).
RESULTS: There was no evidence (P ≥ .68) of an age-related difference in the incidence of hypertension for white men (average incidence 38%), black men (48%), or black women (54%), although for white women incidence increased with age (45-54, 27%; ≥75, 40%). Incidence of diabetes mellitus was lower at older ages for white men (45-54, 15%; ≥75, 8%), black men (45-54, 29%; ≥75, 13%), and white women (45-54, 11%; ≥75, 4%), although there was no evidence (P = .11) of age-related changes for black women (average incidence 21%). For dyslipidemia, incidence for all race-sex groups was approximately 20% for aged 45 to 54 but approximately 30% for aged 54 to 64 and 65 to 74 and approximately 22% for aged 75 and older. Incidence of atrial fibrillation was low at age 45 to 54 (<5%) but for aged 75 and older was approximately 20% for whites and 11% for blacks. The incidence of hypertension, diabetes mellitus, and dyslipidemia was higher in blacks across the age spectrum but lower for atrial fibrillation.
CONCLUSION: Incidence of risk factors remains high in older adults. Blacks have a higher incidence of hypertension, diabetes mellitus, and dyslipidemia after age 45, underscoring the ongoing importance of prevention of all three conditions in mid- to later life.

PMID: 27666895 [PubMed - as supplied by publisher]

Br J Sports Med. 2016 Sep 26. pii: bjsports-2015-095903.

Cardiorespiratory fitness cut points to avoid cardiovascular disease risk in children and adolescents; what level of fitness should raise a red flag? A systematic review and meta-analysis.

Ruiz JR, Cavero-Redondo I, Ortega FB, Welk GJ, Andersen LB, Martinez-Vizcaino V.

BACKGROUND: Poor cardiorespiratory fitness is associated with cardiovascular disease risk factors.
AIM: To perform a systematic review and meta-analysis of the relationship between poor cardiorespiratory fitness and cardiovascular disease risk in children and adolescents.
METHODS: Systematic literature search (1980 to 11 April 2015) for studies that determined a cardiorespiratory fitness cut point that predicted cardiovascular disease risk in children and adolescents.
RESULTS: We identified 7 studies that included 9280 children and adolescents (49% girls) aged 8-19 years from 14 countries. Cardiovascular disease risk was already present in boys (6-39%) and girls (6-86%). Boys with low fitness (<41.8 mL/kg/min) had a 5.7 times greater likelihood of having cardiovascular disease risk (95% CI 4.8 to 6.7). The comparable diagnostic OR for girls with low fitness (<34.6 mL/kg/min) was 3.6 (95% CI 3.0 to 4.3). The 95% confidence region of cardiorespiratory fitness associated with low cardiovascular disease risk ranges, 41.8-47.0 mL/kg/min in boys (eg, stages 6-8 for a boy aged 15 years) and 34.6-39.5 mL/kg/min in girls (eg, stages 3-5 for a girl aged 15 years). The cardiorespiratory fitness cut point to avoid cardiovascular disease risk ranged 41.8 mL/kg/min in boys and was 34.6 mL/kg/min in girls.
SUMMARY: Fitness levels below 42 and 35 mL/kg/min for boys and girls, respectively, should raise a red flag. These translate to 6 and 3 stages on the shuttle run test for a boy and a girl, both aged 15 years, respectively. These cut points identify children and adolescents who may benefit from primary and secondary cardiovascular prevention programming.

PMID: 27670254 [PubMed - as supplied by publisher]

Nutr Res Rev. 2016 Sep 26:1-19. [Epub ahead of print]

Dairy food products: good or bad for cardiometabolic disease?

Lovegrove JA, Givens DI.

Prevalence of type 2 diabetes mellitus (T2DM) is rapidly increasingly and is a key risk for CVD development, now recognised as the leading cause of death globally. Dietary strategies to reduce CVD development include reduction of saturated fat intake. Milk and dairy products are the largest contributors to dietary saturated fats in the UK and reduced consumption is often recommended as a strategy for risk reduction. However, overall evidence from prospective cohort studies does not confirm a detrimental association between dairy product consumption and CVD risk. The present review critically evaluates the current evidence on the association between milk and dairy products and risk of CVD, T2DM and the metabolic syndrome (collectively, cardiometabolic disease). The effects of total and individual dairy foods on cardiometabolic risk factors and new information on the effects of the food matrix on reducing fat digestion are also reviewed. It is concluded that a policy to lower SFA intake by reducing dairy food consumption to reduce cardiometabolic disease risk is likely to have limited or possibly negative effects. There remain many uncertainties, including differential effects of different dairy products and those of differing fat content. Focused and suitably designed and powered studies are needed to provide clearer evidence not only of the mechanisms involved, but how they may be beneficially influenced during milk production and processing.

PMID: 27666526 [PubMed - as supplied by publisher]

Ann Epidemiol. 2016 Sep;26(9):643-7.

Birth weight was longitudinally associated with cardiometabolic risk markers in mid-adulthood.

Mzayek F, Cruickshank JK, Amoah D, Srinivasan S, Chen W, Berenson GS.

PURPOSE: Birth weight (BW) is associated with risk of cardiovascular (CV) disease. The findings from studies examined the association of BW with metabolic markers of CV risk were inconsistent and controversial. We examined the association of BW with insulin resistance and blood lipids using repeated measures up to mid-adulthood.
METHODS: Data from seven screenings of the Bogalusa Heart Study-a longitudinal study of cardiovascular risk factors in Bogalusa, LA-are analyzed using generalized estimation equations method. Participants with birth data and at least one measurement of study outcomes between 18 and 44 years (n = 2,034) were included.
RESULTS: BW is inversely associated with insulin resistance, triglycerides, and total cholesterol ($P < .01$ for all). For 1-kg decrease in BW, insulin resistance increased by 2.3 units, 95% confidence interval (CI) = 0.7-3.9; triglycerides by 8.7 mg per dL, 95% CI = 4.9-12.4, and total cholesterol by 5.4 mg per dL, 95% CI = 1.8-9.1. The association of body mass with adult blood lipids levels is weaker in persons with low versus normal BW.
CONCLUSIONS: The study provides strong evidence of an inverse relationship of BW with adulthood cardiometabolic risk profile. Persons born with low BW are maybe less responsive to preventive interventions aiming at weight reduction.

PMID: 27664850 [PubMed - in process]

Ann Occup Environ Med. 2016 Sep 20;28:48.

Night shift work and inflammatory markers in male workers aged 20-39 in a display manufacturing company.

Kim SW, Jang EC, Kwon SC, Han W, Kang MS, Nam YH, Lee YJ.

BACKGROUND: This study aimed to determine the association between shift work and inflammatory markers, which are independent risk factors of cardiovascular diseases, in male manual workers at a display manufacturing company.
METHODS: This study was conducted between June 1 and July 31, 2015 on 244 male manual workers aged 20-39 years old at a display manufacturing company and investigated age, marital status, education level, alcohol consumption habit, smoking habit, regular exercise habit, sleep duration, sleep debt, sleep insufficiency, past medical history, current and past shift work experience, duration of shift work, and weekly work hours through face-to-face interviews using structured questionnaires and performed blood tests. Study participants were divided into daytime, former shift, and current shift workers based on the work schedule. Chi-square tests and one-way analyses of variance were performed to compare inflammatory markers and cardiovascular disease risk factors, and analyses of covariance were conducted after adjusting for variables potentially affecting inflammatory markers.
RESULTS: High-sensitivity C-reactive protein (hs-CRP; mean±standard deviation) levels in daytime, former shift, and current shift workers were 0.65±0.43, 0.75±0.43, and 0.86±0.72 mg/L, respectively ($p=0.029$). The leukocyte count (mean±standard deviation) was 5,556±1,123, 6,210±1,366, and 6,530±1,216 cells/μL, respectively ($p<0.001$). Both hs-CRP level and leukocyte count were significantly higher in current shift workers than in daytime workers, and leukocyte count was higher in former shift workers than in daytime workers. After adjusting for variables potentially affecting inflammatory markers, hs-CRP levels (adjusted mean±standard deviation) in daytime and current shift workers were 0.59±0.06 and 0.92±0.07 mg/L, respectively ($p=0.002$). The leukocyte count (adjusted mean±standard deviation) was 5,557±124 and 6,498±144 cells/μL, respectively ($p<0.001$).
CONCLUSIONS: A significant association between shift work and increases in inflammatory markers was confirmed. Because chronic low-grade inflammation plays an important role in the development of cardiovascular diseases, regular follow-up of inflammatory markers as a marker of cardiovascular diseases in shift workers may serve as an early indicator in predicting the effects of shift work on health.

PMCID: PMC5028985
PMID: 27660715 [PubMed]

Clin Appl Thromb Hemost. 2016 Sep 21. pii: 1076029616670258. [Epub ahead of print]

Prevalence and Risk Factors Associated With Hypertension in von Willebrand Disease.

Apostolova MH, Seaman CD, Comer DM, Yabes JG, Ragni MV.

BACKGROUND: von Willebrand factor (VWF) is a biomarker for endothelial damage. Increased VWF levels are observed in hypertension (HTN) and disorders of endothelial dysfunction, for example, atherosclerotic heart disease (ASHD) and diabetes. Whether low VWF protects against HTN is unknown.

METHODS: To determine prevalence and risk factors for HTN in patients with von Willebrand disease (VWD), we conducted a cross-sectional analysis of discharge data from the National Inpatient Sample, 2009 to 2011. Group comparisons were performed by Rao-Scott $\chi(2)$ test. Odds of HTN and HTN outcomes in VWD were estimated by weighted multivariable logistic regression.

RESULTS: The prevalence of hypertension in patients with VWD (N = 7556), 37.35%, was significantly lower than that in non-VWD patients (N = 19 918 970), 49.40%, $P < .0001$. Hypertension risk factors (hyperlipidemia, diabetes, smoking, hepatitis C, and HIV) and HTN outcomes (ASHD, myocardial infarction [MI], ischemic stroke, and renal failure) were less common in patients with VWD than in non-VWD patients, all $P \leq .0001$. Patients with VWD were younger, 49.67 versus 57.30 years, Caucasian, 82.23% versus 68.35%, and female, 75.44% versus 59.61%, $P < .0001$. Patients with HTN were older, 67.55 versus 47.29 years, male, 45.99% versus 34.90%, and had more HTN risk factors and HTN outcomes than those without HTN, all $P < .0001$, including male and female subgroups, each $P < .0001$. The unadjusted odds of HTN in patients with VWD (odds ratio [OR] = 0.611, $P < .0001$) and of HTN outcomes in patients with VWD (ASHD, OR = 0.509; MI, OR = 0.422; ischemic stroke, OR = 0.521; renal failure, OR = 0.420, all $P < .0001$) became insignificant after adjustment for HTN risk factors plus demographics (age/race/gender), OR = 1.035, $P = .260$.

CONCLUSION: The risk of HTN is reduced in patients with VWD, but not after adjustment for HTN risk factors plus demographics, as patients with VWD not having HTN are also typically young, Caucasian, and female.

PMID: 27655998 [PubMed - as supplied by publisher]

Scand J Public Health. 2016 Sep 21. pii: 1403494816669427. [Epub ahead of print]

Educational differences in cardiovascular mortality: The role of shared family factors and cardiovascular risk factors.

Kjøllesdal MK, Ariansen I, Mortensen LH, Davey Smith G, Næss Ø.

AIMS: To explore the confounding effects of early family factors shared by siblings and cardiovascular risk factors in midlife on the educational differences in mortality from cardiovascular disease (CVD).
METHODS: Data from national and regional health surveys in Norway (1974-2003) were linked with data from the Norwegian Family Based Life Course Study, the National Educational Registry and the Cause of Death Registry. The study population consisted of participants with at least one full sibling among the health survey participants (n=271,310). Data were available on CVD risk factors, including weight, height, blood pressure, total cholesterol and smoking.
RESULTS: The hazards ratio (HR) of CVD mortality was 3.44 (95% confidence interval (CI) 2.98-3.96) in the lowest educational group relative to the highest. The HRs were little altered in the within-sibship analyses. Adjusted for risk factors, the HR for CVD mortality in the cohort analyses was 2.05 (CI 1.77-2.37) in the lowest educational group relative to the highest. The respective HR in the within-sibship analyses was 2.46 (CI 1.48-2.24).
CONCLUSIONS: using a sibling Design, we did not find that the association between education and cvd mortality was confounded by early life factors shared by siblings, but it was explained to a large extent by Cvd risk factors. These results suggest that reducing levels of Cvd risk factors could have the greatest effect on mortality in less Well-educated people.

PMID: 27655782 [PubMed - as supplied by publisher]

Minerva Pediatr. 2016 Sep 20. [Epub ahead of print]

Pediatric cardiovascular risk factors: a review.

Tian J, An X, Fu M.

The dominant cause of mortality, morbidity and hospitalization worldwide is cardiac complications, and are the major public health problem in adult populations. The worldwide research is being focused on the idea that cardiovascular disease is an early life pathological state. Early unfavorable exposures, acting in different periods of fetal and early postnatal life have been observed to be responsible for permanent editions in the cardiac system. This idea has been confirmed by preclinical experimental studies confirming the early life growth restriction leading to developmental adaptations in cardiovascular form and system. All these editions results in elevated susceptibility to cardiovascular disease. The present review articles will put emphasis on these risk factors, which lead to the deadly cardiac pathology state in young infants.

PMID: 27652900 [PubMed - as supplied by publisher]

Nutrients. 2016 Sep 13;8(9). pii: E567. doi: 10.3390/nu8090567.

Association of Parental Overweight and Cardiometabolic Diseases and Pediatric Adiposity and Lifestyle Factors with Cardiovascular Risk Factor Clustering in Adolescents.

Lee CY, Lin WT, Tsai S, Hung YC, Wu PW, Yang YC, Chan TF, Huang HL, Weng YL, Chiu W, Huang CT, Lee CH.

Cardiometabolic risk factors or their precursors are observed in childhood and may continue into adulthood. We investigated the effects of parental overweight and cardiometabolic diseases and pediatric lifestyle factors on the clustering of cardiovascular risk factors among adolescents, and examined the mediating and modifying effects of pediatric adiposity on these associations. Representative adolescents (n = 2727; age, 12-16 years) were randomly recruited through multistage stratified sampling from 36 schools in Southern Taiwan. Adolescent and parent surveys were conducted in schools and participant homes, respectively. Their demographic factors, diet patterns, and physical, anthropometric, and clinical parameters were collected and analyzed. Adolescents with 1-2 and ≥3 risk components for pediatric metabolic syndrome (MetS) were defined as potential MetS (pot-MetS) and MetS, respectively. Adolescents whose parents were overweight/obese, or with diabetes and hypertension had a higher prevalence ratio of pot-MetS and MetS (1.5-1.6 and 1.9-4.2-fold, respectively). Low physical activity (<952.4 MET·min/week), long screen time (≥3 h/day) and high sugar-sweetened beverage intake (>500 mL/day) were associated with a 3.3- (95% confidence intervals (CI) = 1.5-7.3), 2.2- (95% CI = 1.1-4.4), and 26.9-fold (95% CI = 3.2-229.0) odds ratio (OR) of MetS, respectively. Pediatric body mass index (BMI) accounted for 18.8%-95.6% and 16.9%-60.3% increased prevalence ratios of these parental and pediatric risk factors for MetS. The OR of pot-MetS + MetS for sugar-sweetened beverage consumption was multiplicatively enhanced among adolescents with overweight/obesity (combined OR, 8.6-fold (95% CI = 4.3-17.3); p for multiplicative interaction, 0.009). The results suggest that parental overweight and cardiometabolic diseases and pediatric sedentary and high sugar-intake lifestyles correlate with the development of adolescent MetS, and an elevated child BMI explains a part of these associations. Pediatric adiposity might be multiplicatively associated with sugar-sweetened beverage consumption for enhancing the MetS prevalence ratio among adolescents.

PMID: 27649237 [PubMed - in process]

Clin J Am Soc Nephrol. 2016 Sep 14. pii: CJN.01270216. [Epub ahead of print]

Cardiovascular Disease Risk Factors and Left Ventricular Hypertrophy in Girls and Boys With CKD.

Ruebner RL, Ng D, Mitsnefes M, Foster BJ, Meyers K, Warady B, Furth SL.

BACKGROUND AND OBJECTIVES: Prior studies suggested that women with CKD have higher risk for cardiovascular disease (CVD) and mortality than men, although putative mechanisms for this higher risk have not been identified. We assessed sex differences in (1) CVD risk factors and left ventricular hypertrophy (LVH), and (2) the relationship of left ventricular mass (LVM) with different measures of body size in children with CKD.

DESIGN, SETTING, PARTICIPANTS, AND MEASUREMENTS: The study population comprised 681 children with CKD from the Chronic Kidney Disease in Children cohort, contributing 1330 visits. CVD risk factors were compared cross-sectionally by sex. LVH was defined as LVM/height(2.7) >95th percentile and LVM relative to estimated lean body mass (eLBM) >95th percentile for age and sex. Differences in LVM by sex were assessed by adjusting for age, weight, height, and eLBM using bivariate and multivariate regression models.

RESULTS: Girls were less likely to have uncontrolled hypertension (26% versus 38%, P=0.001), had lower diastolic BP z-scores (+0.3 versus +0.6, P=0.001), and had lower prevalence of high triglycerides (38% versus 47%, P=0.03) compared with boys. When LVH was defined by LVM indexed to height, girls had higher prevalence of LVH (16% versus 9%, P=0.01); when LVH was defined by LVM relative to eLBM, prevalence of LVH was similar between girls and boys (18% versus 17%, P=0.92). In regression models adjusting for eLBM, no sex differences in LVM were observed.

CONCLUSIONS: Despite lack of increased prevalence of CVD risk factors, indexing LVM to height showed a higher proportion of LVH among girls, while estimates of LVH based on eLBM showed no sex differences. Indexing LVM to eLBM may be an alternative to height indexing in children with CKD.

PMID: 27630183 [PubMed - as supplied by publisher]

Altern Ther Health Med. 2016 Sep;22(5):32-6.

Nutrient-dense, Plant-rich Dietary Intervention Effective at Reducing Cardiovascular Disease Risk Factors for Worksites: A Pilot Study.

Sutliffe JT, Fuhrman JH, Carnot MJ, Beetham RM, Peddy MS.

conduct interventions for health promotion and disease prevention to ameliorate chronic risk factors for disease, such as for cardiovascular disease (CVD). Likewise, nutrient-dense, plant-rich (NDPR) dietary patterns have been shown to be effective at preventing and improving chronic-disease conditions, including CVD. Objective • The study's aim was to determine the feasibility and effectiveness of an NDPR dietary intervention for worksites to lower CVD risk factors. Design • The study was a 6-wk pilot intervention using a pretest and posttest design.SETTING: The intervention was conducted at the Northern Arizona University (Flagstaff, AZ, USA) and sponsored by its Employee Assistance and Wellness Department. Participants • Participants were 35 employees with body mass indexes (BMIs) >25 kg/m2 who were ready and willing to make a lifestyle change, who were not currently participating in a weight loss program, and who were not taking any medications that could increase medical risk or had weight loss as a primary side effect. The average age of participants was 42.57 y; 91.4% were female, and 80% were Caucasian. Intervention • The intervention used a dietary protocol consisting of the daily consumption of greens, beans, legumes, and a variety of other vegetables, as well as fresh or frozen whole fruits, nuts, seeds, and whole grains. Participants were encouraged to minimize the consumption of refined grains, vegetable oils, processed foods, and animal products. Outcome Measures • The study measured serum lipids, height, weight, waist and hip circumference, waist-to-hip ratio, and blood pressure. Results • Based on paired-sample t tests and Wilcoxon signed-ranks test with a maximum level of P = .05, the intervention resulted in significant changes in weight, BMI, waist and hip measurements, high-density lipoproteins, low-density lipoproteins, and estimated average glucose. Conclusions • The findings favorably revealed that an NDPR dietary intervention that was developed for worksites was an effective approach for reducing CVD risk factors.

PMID: 27622958 [PubMed - in process]

Circulation. 2016 Sep 12. pii: CIRCULATION AHA.116.023264. [Epub ahead of print]

Should Patients With Cardiovascular Risk Factors Receive Intensive Treatment of Hypertension to <120/80 mmHg Target?: An Antagonist View from HOPE-3.

Lonn EM, Yusuf S.

Epidemiological studies show a graded increase in risk at systolic blood pressure (BP) above 115 mmHg and diastolic BP above 75 mmHg. However, it remains unclear if pharmacological BP lowering to these levels reduces CV events and is safe.Observational analyses raised concerns about aggressive BP lowering to levels below 120/80 mmHg, suggesting the existence of a J-curve phenomenon with increased risk especially for coronary events. However, such analyses are potentially confounded. More reliable data is provided by randomized trials.

PMID: 27619924 [PubMed - as supplied by publisher]

Circulation. 2016 Sep 12. pii: CIR.0000000000000443. [Epub ahead of print]

Cardiovascular Consequences of Childhood Secondhand Tobacco Smoke Exposure: Prevailing Evidence, Burden, and Racial and Socioeconomic Disparities: A Scientific Statement From the American Heart Association.

Raghuveer G, White DA, Hayman LL, Woo JG, Villafane J, Celermajer D, Ward KD, de Ferranti SD, Zachariah J; American Heart Association Committee on Atherosclerosis, Hypertension, and Obesity in the Young of the Council on Cardiovascular Disease in the Young; Behavior Change for Improving Health Factors Committee of the Council on Lifestyle and Cardiometabolic Health and Council on Epidemiology and Prevention; and Stroke Council.

BACKGROUND: Although public health programs have led to a substantial decrease in the prevalence of tobacco smoking, the adverse health effects of tobacco smoke exposure are by no means a thing of the past. In the United States, 4 of 10 school-aged children and 1 of 3 adolescents are involuntarily exposed to secondhand tobacco smoke (SHS), with children of minority ethnic backgrounds and those living in low-socioeconomic-status households being disproportionately affected (68% and 43%, respectively). Children are particularly vulnerable, with little control over home and social environment, and lack the understanding, agency, and ability to avoid SHS exposure on their own volition; they also have physiological or behavioral characteristics that render them especially susceptible to effects of SHS. Side-stream smoke (the smoke emanating from the burning end of the cigarette), a major component of SHS, contains a higher concentration of some toxins than mainstream smoke (inhaled by the smoker directly), making SHS potentially as dangerous as or even more dangerous than direct smoking. Compelling animal and human evidence shows that SHS exposure during childhood is detrimental to arterial function and structure, resulting in premature atherosclerosis and its cardiovascular consequences. Childhood SHS exposure is also related to impaired cardiac autonomic function and changes in heart rate variability. In addition, childhood SHS exposure is associated with clustering of cardiometabolic risk factors such as obesity, dyslipidemia, and insulin resistance. Individualized interventions to reduce childhood exposure to SHS are shown to be at least modestly effective, as are broader-based policy initiatives such as community smoking bans and increased taxation.

PURPOSE: The purpose of this statement is to summarize the available evidence on the cardiovascular health consequences of childhood SHS exposure; this will support ongoing efforts to further reduce and eliminate SHS exposure in this vulnerable population. This statement reviews relevant data from epidemiological studies, laboratory-based experiments, and controlled behavioral trials concerning SHS and cardiovascular disease risk in children. Information on the effects of SHS exposure on the cardiovascular system in animal and pediatric studies, including vascular disruption and platelet activation, oxidation and

inflammation, endothelial dysfunction, increased vascular stiffness, changes in vascular structure, and autonomic dysfunction, is examined.
CONCLUSIONS: The epidemiological, observational, and experimental evidence accumulated to date demonstrates the detrimental cardiovascular consequences of SHS exposure in children. IMPLICATIONS: Increased awareness of the adverse, lifetime cardiovascular consequences of childhood SHS may facilitate the development of innovative individual, family-centered, and community health interventions to reduce and ideally eliminate SHS exposure in the vulnerable pediatric population. This evidence calls for a robust public health policy that embraces zero tolerance of childhood SHS exposure.

PMID: 27619923 [PubMed - as supplied by publisher]

Circulation. 2016 Sep 12. pii: CIRCULATIONAHA.116.023263. [Epub ahead of print]

Should Patients With Cardiovascular Risk Factors Receive Intensive Treatment of Hypertension to < 120/80 mmHg Target?: A Protagonist View from SPRINT.

Oparil S, Lewis CE.

Based on the main results of the Systolic Blood Pressure Intervention Trial (SPRINT), we strongly believe that older hypertensive patients at high cardiovascular (CV) risk should receive intensive treatment to a target systolic blood pressure (SBP) of < 120 mm Hg [1-2]. SPRINT tested the hypothesis that intensive treatment of SBP to a target of < 120 mm Hg would reduce clinical events more than standard treatment to a target of < 140 mm Hg. SPRINT enrolled persons age 50 years or greater with SBP 130-180 mm Hg (treated or untreated), and at high CV risk. In particular, SPRINT over enrolled high-risk subgroups, including those age ≥75 years (SPRINT-Senior), blacks, and those with chronic kidney disease (CKD) or cardiovascular disease (CVD). The mean 10-year Framingham CVD risk score for all participants was 20%.

PMID: 27619922 [PubMed - as supplied by publisher]

Ann Intern Med. 2016 Sep 13. doi: 10.7326/M16-1110. [Epub ahead of print]

Cardiovascular Risk Assessment: A Systematic Review of Guidelines.

Khanji MY, Bicalho VV, van Waardhuizen CN, Ferket BS, Petersen SE, Hunink MG.

Background: Many guidelines exist for screening and risk assessment for the primary prevention of cardiovascular disease in apparently healthy persons. Purpose: To systematically review current primary prevention guidelines on adult cardiovascular risk assessment and highlight the similarities and differences to aid clinician decision making.
Data Sources: Publications in MEDLINE and CINAHL between 3 May 2009 and 30 June 2016 were identified. On 30 June 2016, the Guidelines International Network International Guideline Library, National Guideline Clearinghouse, National Library for Health Guidelines Finder, Canadian Medical Association Clinical Practice Guidelines Infobase, and Web sites of organizations responsible for guideline development were searched.
Study Selection: 2 reviewers screened titles and abstracts to identify guidelines from Western countries containing recommendations for cardiovascular risk assessment for healthy adults.
Data Extraction: 2 reviewers independently assessed rigor of guideline development using the Appraisal of Guidelines for Research and Evaluation II instrument, and 1 extracted the recommendations.
Data Synthesis: Of the 21 guidelines, 17 showed considerable rigor of development. These recommendations address assessment of total cardiovascular risk (5 guidelines), dysglycemia (7 guidelines), dyslipidemia (2 guidelines), and hypertension (3 guidelines). All but 1 recommendation advocates for screening, and most include prediction models integrating several relatively simple risk factors for either deciding on further screening or guiding subsequent management. No consensus on the strategy for screening, recommended target population, screening tests, or treatment thresholds exists.
Limitation: Only guidelines developed by Western national or international medical organizations were included.
Conclusion: Considerable discrepancies in cardiovascular screening guidelines still exist, with no consensus on optimum screening strategies or treatment threshold.
Primary Funding Source: Barts Charity.

PMID: 27618509 [PubMed - as supplied by publisher]

J Stroke Cerebrovasc Dis. 2016 Sep 8. pii: S1052-3057(16)30290-7.

Overweight and Obesity in Young Adulthood and the Risk of Stroke: a Meta-analysis.

Guo Y, Yue XJ, Li HH, Song ZX, Yan HQ, Zhang P, Gui YK, Chang L, Li T.

BACKGROUND: A systematic review assessing the association between overweight and obesity in young adulthood and stroke risk is lacking. Therefore, we conducted a meta-analysis to evaluate the association between overweight and obesity in young adulthood and stroke risk.
METHODS: We systematically searched PubMed and Embase databases for related studies of human subjects in the English language. Two investigators independently selected original studies in a 2-step process. Fixed- and random-effects models were used to calculate pooled relative risks (RRs) and 95% confidence intervals (CIs). Subgroup analyses were also performed.
RESULTS: Eight studies met the inclusion criteria. The pooled adjusted RR of stroke was 1.36 (95% CI: 1.28-1.44) for overweight in young adulthood and 1.81 (95% CI: 1.45-2.25) for obesity in young adulthood. In subgroup analyses, overweight and obesity in young adulthood increased the risk of stroke in most groups, except for the group of stroke subtype. For ischemic stroke, the adjusted RR was 1.40 (95% CI: 1.24-1.58) for overweight in young adulthood and 1.78 (95% CI: 1.003-3.16) for obesity in young adulthood, whereas adjusted RR for hemorrhagic stroke was 1.25 (95% CI: .83-1.90) for overweight in young adulthood and 1.80 (95% CI: .97-3.35) for obesity in young adulthood.
CONCLUSIONS: Overweight and obesity in young adulthood are associated with an increased risk of stroke, probably, independent of other cardiovascular risk factors. The risk effect gradually increases with increasing body weight.

PMID: 27618195 [PubMed - as supplied by publisher]

J Hum Nutr Diet. 2016 Sep 9. doi: 10.1111/jhn.12414. [Epub ahead of print]

Body composition of obese adolescents: association between adiposity indicators and cardiometabolic risk factors.

Araújo AJ, Santos AC, Prado WL.

BACKGROUND: The association between obesity during adolescence and the increased risk of cardiometabolic diseases indicates the need to identify reproducible and cost effective methods for identifying individuals who are at increased risk of developing diseases. The present cross-sectional study investigated the occurrence of metabolic consequences of obesity in adolescents and the use of adiposity indicators as predictors of cardiometabolic risk.
METHODS: A fasting blood sample was taken in 93 pubertal obese adolescents aged 13-18 years old (39 males, 54 females) for the assessment of cardiometabolic risk markers (glucose, lipid profiles, insulin resistence, and inflammatory and endothelial dysfunction markers). Together with anthropometry, total fat mass and lean mass were determined by dual-energy X-ray absorptiometry (DXA).
RESULTS: The prevalence of dyslipidaemia and disorders in glucose metabolism are noticeably higher in the present study. There was no correlation between the percentage of body fat according to DXA and most indicators of adiposity. For boys, the arm circumference values predicted the increase in fasting insulin (r^2 = 0.200), homeostasis model assessment of insulin resistance (r^2 = 0.267) and cardiometabolic risk score (r^2 = 0.338). The percentage of body fat according to DXA predicted the inflammation score (r^2 = 0.172). For girls, body mass index was the parameter that best described the variability of fasting insulin (r^2 = 0.079) and inflammation score (r^2 = 0.263). The waist-to-stature ratio was able to predict the triglyceride values (r^2 = 0.090).
CONCLUSIONS: Anthropometric measures of adiposity, such a body mass index, waist-to-stature ratio, arm circumference and waist circumference, should be considered in the clinical evaluation of obese adolescents.

PMID: 27611775 [PubMed - as supplied by publisher]

J Womens Health (Larchmt). 2016 Sep 9. [Epub ahead of print]

Cardiovascular Risk in HIV-Infected and Uninfected Postmenopausal Minority Women: Use of the Framingham Risk Score.

Cortés YI, Reame N, Zeana C, Jia H, Ferris DC, Shane E, Yin MT.

OBJECTIVE: To characterize and compare cardiovascular disease (CVD) risk in HIV-infected and uninfected postmenopausal minority women using the Framingham Risk Score (FRS) as an assessment measure.

METHODS: A cross-sectional analysis was performed in 152 (109 HIV+, 43 HIV-) subjects from an existing study cohort of postmenopausal Hispanic and African American women. Data necessary to calculate FRS and menopause features were retrieved by retrospective chart review. Bivariate statistics was used to compare CVD risk factors. Multivariable linear regression was used to determine factorsassociated with FRS in HIV-infected women.

RESULTS: The HIV-infected group was younger, less obese, and with lower rates of diabetes versus controls. In a subset of age-matched participants, median FRS did not differ between groups (14.6 [IQR=9.1, 21.6] vs. 15.5 [IQR=12.3, 22.1]; p=0.73). Fourteen percent of HIV-infected women meeting criteria for the low-risk FRS category (<10%) had a history of CVD, a similar rate as controls. HIV-infected women at intermediate/high CVD risk had higher rates of surgical menopause. According to 2013 clinical guidelines, more than half of HIV-infected women not prescribed statin therapy (52%) were eligible for treatment; however, statin therapy was similarly under-prescribed in uninfected women.

CONCLUSIONS: In this study, CVD risk as assessed by the FRS was not significantly different by HIV status. Performance of the FRS may be compromised in postmenopausal HIV-infected minority women. HIV-infected and uninfected women may be undertreated with statin therapy. Large longitudinal cohorts and inclusion of subclinical measures of CVD are necessary to better characterize risk.

PMID: 27611626 [PubMed - as supplied by publisher]

Arterioscler Thromb Vasc Biol. 2016 Oct;36(10):2100-7.

HIV, Cocaine Use, and Hepatitis C Virus: A Triad of Nontraditional Risk Factors for Subclinical Cardiovascular Disease.

Lucas GM, Atta MG, Fine DM, McFall AM, Estrella MM, Zook K, Stein JH.

OBJECTIVE: We assessed cross-sectional and longitudinal associations of 3 nontraditional cardiovascular disease risk factors-HIV, cocaine use, and chronic hepatitis C virus infection-with 3 validated markers of subclinical cardiovascular disease: carotid artery plaque, albuminuria, and aortic pulse wave velocity in a well-characterized cohort.
APPROACH AND RESULTS: We measured carotid plaque at baseline and after 24 months, urine albumin/creatinine ratio every 6 months, and pulse wave velocity annually for up to 36 months in a predominantly black cohort of 292 participants (100 HIV negative and 192 HIV positive). Thirty-nine percent had chronic hepatitis C virus infection and 20%, 28%, and 52% were never, past, and current cocaine users, respectively. Sixteen percent, 47%, and 64% of those with none, 1 or 2, or all 3 nontraditional risk factors had ≥2 abnormal cardiovascular disease risk markers (P=0.001). In fully adjusted models that included all 3 nontraditional risk factors, HIV infection was independently associated with carotid plaque progression (increase in the number of anatomic segments with plaque), albuminuria (albumin-creatinine ratio >30 mg/g), albuminuria progression (doubling of albumin-creatinine ratio from baseline to a value >30 mg/g), and pulse wave velocity. Cocaine use was associated with an ≈3-fold higher odds of carotid plaque at baseline, and hepatitis C virus infection was significantly associated with a higher risk of carotid plaque progression. CONCLUSIONS: These results suggest that HIV infection, cocaine use, and hepatitis C virus infection are important nontraditional risk factors for cardiovascular disease and highlight the need to understand the distinct and overlapping mechanisms of the associations.

PMCID: PMC5033718 [Available on 2017-10-01]
PMID: 27609369 [PubMed - in process]

Int J Health Serv. 2016 Oct;46(4):656-92.

Globalization, Work, and Cardiovascular Disease.

Schnall PL, Dobson M, Landsbergis P.

Cardiovascular disease (CVD), a global epidemic, is responsible for about 30% of all deaths worldwide. While mortality rates from CVD have been mostly declining in the advanced industrialized nations, CVD risk factors, including hypertension, obesity, and diabetes, have been on the increase everywhere. Researchers investigating the social causes of CVD have produced a robust body of evidence documenting the relationships between the work environment and CVD, including through the mechanisms of psychosocial work stressors. We review the empirical evidence linking work, psychosocial stressors, and CVD. These work stressors can produce chronic biologic arousal and promote unhealthy behaviors and thus, increased CVD risk. We offer a theoretical model that illustrates how economic globalization influences the labor market and work organization in high-income countries, which, in turn, exacerbates job characteristics, such as demands, low job control, effort-reward imbalance, job insecurity, and long work hours. There is also a growing interest in "upstream" factors among work stress researchers, including precarious employment, downsizing/restructuring, privatization, and lean production. We conclude with suggestions for future epidemiologic research on the role of work in the development of CVD, as well as policy recommendations for prevention of work-related CVD.

PMID: 27604540 [PubMed - in process]

J Am Heart Assoc. 2016 Sep 7;5(9). pii: e003614. doi: 10.1161/JAHA.116.003614.

Economic Impact of Moderate-Vigorous Physical Activity Among Those With and Without Established Cardiovascular Disease: 2012 Medical Expenditure Panel Survey.

Valero-Elizondo J, Salami JA, Osondu CU, Ogunmoroti O, Arrieta A, Spatz ES, Younus A, Rana JS, Virani SS, Blankstein R, Blaha MJ, Veledar E, Nasir K.

BACKGROUND: Physical activity (PA) has an established favorable impact on cardiovascular disease (CVD) outcomes and quality of life. In this study, we aimed to estimate the economic effect of moderate-vigorous PA on medical expenditures and utilization from a nationally representative cohort with and without CVD.

METHODS AND RESULTS: The 2012 Medical Expenditure Panel Survey data were analyzed. Our study population was limited to noninstitutionalized US adults ≥18 years of age. Variables of interest included CVD (coronary artery disease, stroke, heart failure, dysrhythmias, or peripheral artery disease) and cardiovascular modifiable risk factors (CRFs; hypertension, diabetes mellitus, hypercholesterolemia, smoking, and/or obesity). Two-part econometric models were utilized to study cost data; a generalized linear model with gamma distribution and link log was used to assess expenditures per capita. The final study sample included 26 239 surveyed individuals. Overall, 47% engaged in moderate-vigorous PA ≥30 minutes, ≥5 days/week, translating to 111.5 million adults in the United States stratifying by CVD status; 32% reported moderate-vigorous PA among those with CVD versus 49% without CVD. Generally, participants reporting moderate-vigorous PA incurred significantly lower health care expenditures and resource utilization, displaying a step-wise lower total annual health care expenditure as moving from CVD to non-CVD (and each CRF category).

CONCLUSIONS: Moderate-vigorous PA ≥30 minutes, ≥5 days/week is associated with significantly lower health care spending and resource utilization among individuals with and without established CVD.

PMID: 27604455 [PubMed - in process]

Medicine (Baltimore). 2016 Sep;95(36):e4758. doi: 10.1097/MD.0000000000004758.

Hypertension burden in Luxembourg: Individual risk factors and geographic variations, 2013 to 2015 European Health Examination Survey.

Ruiz-Castell M, Kandala NB, Kuemmerle A, Schritz A, Barré J, Delagardelle C, Krippler S, Schmit JC, Stranges S.

Hypertension is a modifiable risk factor for cardiovascular disease, but it remains the main cause of death in Luxembourg. We aimed to estimate the current prevalence of hypertension, associated risk factors, and its geographic variation in Luxembourg. Cross-sectional, population-based data on 1497 randomly selected Luxembourg residents aged 25 to 64 years were collected as part of the European Health Examination Survey from 2013 to 2015. Hypertension was defined as systolic/diastolic blood pressure ≥140/90mm Hg, self-report of a physician diagnosis or on antihypertensive medication. Standard and Bayesian regressions were used to examine associations between hypertension and covariates, and also geographic distribution of hypertension across the country. Nearly 31% of Luxembourg residents were hypertensive, and over 70% of those were either unaware of their condition or not adequately controlled. The likelihood of hypertension was lower in men more physically active (odds ratio [95% credible region] 0.6 [0.4, 0.9]) and consuming alcohol daily (0.3 [0.1, 0.8]), and higher in men with a poor health perception (1.6 [1.0, 2.7]) and in women experiencing depressive symptoms (1.8 [1.3, 2.7]). There were geographic variations in hypertension prevalence across cantons and municipalities. The highest odds ratio was observed in the most industrialized region (South-West) (1.2 [0.9, 1.6]) with a positive effect at 90% credible region. In Luxembourg, the vast majority of people with hypertension are either unaware of their condition or not adequately controlled, which constitutes a major, neglected public health challenge. There are geographic variations in hypertension prevalence in Luxembourg, hence the role of individual and regional risk factors along with public health initiatives to reduce disease burden should be considered.

PMCID: PMC5023897
PMID: 27603374 [PubMed - in process]

Int J Cardiol. 2016 Aug 22;224:8-14.

Metabolic syndrome and its individual components with mortality among patients with coronary heart disease.

Chen Q, Zhang Y, Ding D, Li D, Xia M, Li X, Yang Y, Li Q, Hu G, Ling W.

BACKGROUND: The metabolic syndrome (MetS) and its metabolic risk factors appear to promote the development of atherosclerotic cardiovascular disease. The aim of this study was to examine the association of MetS and its individual components with all-cause and cardiovascular mortality among patients with coronary heart disease (CHD).
METHODS: We performed a prospective, hospital-based cohort among 3599 CHD patients in China. Cox proportional hazards regression models were used to estimate the association of MetS and its components at baseline with risk of mortality.
RESULTS: During a mean follow-up period of 4.9years, 308 deaths were identified, 200 of which were due to cardiovascular disease. Compared with patients without MetS, patients with MetS according to the AHA/NHLBI statement had a 1.26-fold higher risk (95% CI, 1.01-1.59) of all-cause mortality and a 1.41-fold higher risk (1.06-1.87) of cardiovascular mortality. Patients with increasing numbers of components of MetS had a gradually increased risk for all-cause and cardiovascular mortality ($P<0.05$). When each component of MetS was considered as a dichotomized variable separately, only low high-density lipoprotein cholesterol (HDL-C) and elevated fasting blood glucose (FBG) were associated with all-cause and cardiovascular mortality. After using restricted cubic splines, we found a U-shaped association of HDL-C, body mass index and blood pressure, a positive association of FBG, and no association of triglycerides with the risks of all-cause and cardiovascular mortality.
CONCLUSIONS: MetS is a risk factor for all-cause and cardiovascular mortality among CHD patients. It is very important to control metabolic components in a reasonable control range.

PMID: 27599384 [PubMed - as supplied by publisher]

PLoS One. 2016 Sep 6;11(9):e0162386

A Global View of the Relationships between the Main Behavioural and Clinical Cardiovascular Risk Factors in the GAZEL Prospective Cohort.

Meneton P, Lemogne C, Herquelot E, Bonenfant S, Larson MG, Vasan RS, Ménard J, Goldberg M, Zins M.

Although it has been recognized for a long time that the predisposition to cardiovascular diseases (CVD) is determined by many risk factors and despite the common use of algorithms incorporating several of these factors to predict the overall risk, there has yet been no global description of the complex way in which CVD risk factors interact with each other. This is the aim of the present study which investigated all existing relationships between the main CVD risk factors in a well-characterized occupational cohort. Prospective associations between 12 behavioural and clinical risk factors (gender, age, parental history of CVD, non-moderate alcohol consumption, smoking, physical inactivity, obesity, hypertension, dyslipidemia, diabetes, sleep disorder, depression) were systematically tested using Cox regression in 10,736 middle-aged individuals free of CVD at baseline and followed over 20 years. In addition to independently predicting CVD risk (HRs from 1.18 to 1.97 in multivariable models), these factors form a vast network of associations where each factor predicts, and/or is predicted by, several other factors (n = 47 with $p<0.05$, n = 37 with $p<0.01$, n = 28 with $p<0.001$, n = 22 with $p<0.0001$). Both the number of factors associated with a given factor (1 to 9) and the strength of the associations (HRs from 1.10 to 6.12 in multivariable models) are very variable, suggesting that all the factors do not have the same influence within this network. These results show that there is a remarkably extensive network of relationships between the main CVD risk factors which may have not been sufficiently taken into account, notably in preventive strategies aiming to lower CVD risk.

PMCID: PMC5012694
PMID: 27598908 [PubMed - in process]

Lancet Diabetes Endocrinol. 2016 Aug 30. pii: S2213-8587(16)30162-0.

Association of the magnitude of weight loss and changes in physical fitness with long-term cardiovascular disease outcomes in overweight or obese people with type 2 diabetes: a post-hoc analysis of the Look AHEAD randomised clinical trial.

Look AHEAD Research Group.

BACKGROUND: Findings from the Look AHEAD trial showed no significant reductions in the primary outcome of cardiovascular disease incidence in adults with type 2 diabetes randomly assigned to an intensive lifestyle intervention for weight loss compared with those randomly assigned to diabetes support and education (control). We examined whether the incidence of cardiovascular disease in Look AHEAD varied by changes in weight or fitness.

METHODS: Look AHEAD was a randomised clinical trial done at 16 clinical sites in the USA, recruiting patients from Aug 22, 2001, to April 30, 2004. In the trial, 5145 overweight or obese adults aged 45-76 years with type 2 diabetes were assigned (1:1) to an intensive lifestyle intervention or diabetes support and education. In this observational, post-hoc analysis, we examined the association of magnitude of weight loss and fitness change over the first year with incidence of cardiovascular disease. The primary outcome of the trial and of this analysis was a composite of death from cardiovascular causes, non-fatal acute myocardial infarction, non-fatal stroke, or admission to hospital for angina. The secondary outcome included the same indices plus coronary artery bypass grafting, carotid endartectomy, percutaneous coronary intervention, hospitalisation for congestive heart failure, peripheral vascular disease, or total mortality. We adjusted analyses for baseline differences in weight or fitness, demographic characteristics, and risk factors for cardiovascular disease. The Look AHEAD trial is registered with ClinicalTrials.gov, number NCT00017953.

FINDINGS: For the analyses related to weight change, we excluded 311 ineligible participants, leaving a population of 4834; for the analyses related to fitness change, we excluded 739 participants, leaving a population of 4406. In analyses of the full cohort (ie, combining both study groups), over a median 10·2 years of follow-up (IQR 9·5-10·7), individuals who lost at least 10% of their bodyweight in the first year of the study had a 21% lower risk of the primary outcome (adjusted hazard ratio [HR] 0·79, 95% CI 0·64-0·98; p=0·034) and a 24% reduced risk of the secondary outcome (adjusted HR 0·76, 95% CI 0·63-0·91; p=0·003) compared with individuals with stable weight or weight gain. Achieving an increase of at least 2 metabolic equivalents in fitness change was associated with a significant reduction in the secondary outcome (adjusted HR 0·77, 95% CI 0·61-0·96; p=0·023) but not the primary outcome (adjusted HR 0·78, 0·60-1·03; p=0·079). In analyses treating the control group as the reference group, participants in the intensive lifestyle intervention group who lost at least 10% of their bodyweight had a 20% lower risk of the primary outcome (adjusted HR 0·80, 95% CI 0·65-0·99;

p=0·039), and a 21% lower risk of the secondary outcome (adjusted HR 0·79, 95% CI 0·66-0·95; p=0·011); however, change in fitness was not significantly associated with a change in the primary outcome.

INTERPRETATION: The results of this post-hoc analysis of Look AHEAD suggest an association between the magnitude of weight loss and incidence of cardiovascular disease in people with type 2 diabetes. These findings suggest a need to continue to refine approaches to identify individuals who are most likely to benefit from lifestyle interventions and to develop strategies to improve the magnitude of sustained weight loss with lifestyle interventions.

FUNDING: US National Institute of Diabetes and Digestive and Kidney Diseases.

PMID: 27595918 [PubMed - as supplied by publisher]

Clin Nutr. 2016 Aug 24. pii: S0261-5614(16)30212-6.

Smoking status is inversely associated with overall diet quality: Findings from the ORISCAV-LUX study.

Alkerwi A, Baydarlioglu B, Sauvageot N, Stranges S, Lemmens P, Shivappa N, Hébert JR.

BACKGROUND & AIMS: Relationships between food consumption/nutrient intake and tobacco smoking have been described in the literature. However, little is known about the association between smoking and overall diet quality. This study examined the associations between eight diet quality indices, namely, the Diet Quality Index-International (DQI-I), Recommendation Compliance Index (RCI), Dietary Approach to Stop Hypertension (DASH) score, Energy Density Score (EDS), Dietary Diversity Score (DDS), Recommended Food Score (RFS), non-Recommended Food Score (non-RFS), and Dietary Inflammatory Index (DII), and smoking status with a focus on smoking intensity.

METHODS: Analyses were based on a sample of 1352 participants in the Observation of Cardiovascular Risk Factors in Luxembourg (ORISCAV-LUX) survey, a nationwide population-based cross-sectional study of adults aged 18-69 years. Nutritional data from food frequency questionnaire (FFQ) were used to compute selected diet quality indices. Participants were classified as never smoker, former smoker (≥12 months cessation period), occasional or light smokers (≤1 cig/d), moderate smokers (≤20 cig/d) and heavy smokers (>20 cig/d). Descriptive and linear regression analyses were performed, after adjustment for several potential covariates.

RESULTS: Compared to the other groups, heavy smokers had significantly higher prevalence of dyslipidemia (83%), obesity (34%), and elevated glycemic biomarkers. About 50% of former smokers had hypertension. Diet quality of heavy smokers was significantly poorer than those who never smoked independent of several socioeconomic, lifestyle, and biologic confounding factors (all $p < 0.001$). Heavy smokers were less compliant with national or international dietary recommendations, expressed by RCI, DQI-I, and RFS. In addition, they consumed a more pro-inflammatory diet, as expressed by higher DII scores ($P < 0.001$) and self-reported less dietary diversity in their food choices, as expressed by DDS.

CONCLUSION: This study provides new evidence concerning an inverse relationship between the intensity of tobacco consumption and overall diet quality. The implication is that efforts aimed at tobacco control should target heavy smokers and intervention on smoking cessation should take into account diet quality of smokers and their nutritional habits, to increase effectiveness and relevance of public health messages.

PMID: 27595637 [PubMed - as supplied by publisher]

Atherosclerosis. 2016 Oct;253: 265-267.

Early interventions for optimal control of prediabetes and diabetes: Critical to prevent cardiovascular disease?

Kianoush S, Blaha MJ.

PMID: 27594538 [PubMed - in process]

J Clin Lipidol. 2016 Jul-Aug;10(4):962-9.

Increase HDL-C level over the menopausal transition is associated with greater atherosclerotic progression.

El Khoudary SR, Wang L, Brooks MM, Thurston RC, Derby CA, Matthews KA.

BACKGROUND: Experimental and observational evidence demonstrates that high-density lipoprotein (HDL) can lose its well-documented atheroprotective functions and even adopt a paradoxically proinflammatory nature in certain conditions. Hormonal alterations, especially estradiol reduction, influence the accumulation of risk factors that could potentially impair the quality of HDL during the menopausal transition (MT). Limited data exist to evaluate the relationship between changes in HDL-cholesterol (HDL-C) and its main carried protein, apolipoprotein A (apoA), over the MT, and atherosclerosis development. OBJECTIVE: To evaluate the associations of changes in HDL-C and apoA with progression of carotid intima-media thickness (cIMT), carotid adventitial diameter (cAD), and presence of carotid plaque relative to the onset of the postmenopause. METHODS: A total of 213 participants (age [mean (SD)]: 45.7 [2.5] years at baseline; 70% white) from the Study of Women's Health Across the Nation Pittsburgh site were included. Participants had up to 5 measures of cIMT, cAD, and carotid plaque over a maximum of 9 years of follow-up. RESULTS: Adjusting for sociodemographic, cardiovascular disease risk factors, cardiovascular disease medication use, and C-reactive protein, a larger increase in HDL-C since baseline was significantly associated with a greater cIMT progression (P = .008). Additionally, a higher apoA level at baseline was significantly associated with a lower cIMT progression (P = .03). No significant associations were found with cAD or plaque presence. CONCLUSIONS: As women transition through menopause, increases in HDL-C levels are independently associated with greater cIMT progression. Thus, the quality of HDL may be altered over the MT rendering HDL dysfunctional and not providing the expected cardioprotective effect.

PMCID: PMC5010007 [Available on 2017-07-01] PMID: 27578129 [PubMed - in process]

J Acad Nutr Diet. 2016 Aug 25. pii: S2212-2672(16)30787-0.

Adherence to a Mediterranean-Style Diet and Its Influence on Cardiovascular Risk Factors in Postmenopausal Women.

Bihuniak JD, Ramos A, Huedo-Medina T, Hutchins-Wiese H, Kerstetter JE, Kenny AM.

BACKGROUND: A Mediterranean-style diet (MedSD) is associated with positive health outcomes, particularly reduced risk of cardiovascular disease. It is of interest to assess the feasibility of adherence to a MedSD in a subset of older adults in the United States.
OBJECTIVE: To assess the efficacy of implementing a MedSD intervention in a subset of postmenopausal women living in the United States, and to detect the influence of this dietary pattern on blood lipid levels. DESIGN: A partial feeding, nutrition cou nseling, pilot study with a one-group longitudinal design.
PARTICIPANTS: Sixteen healthy, postmenopausal, American women living in suburban communities in Farmington, CT, with a mean±standard deviation age of 77±6.8 years and a body mass index of 26.1±3.1.
INTERVENTION: Participants were counseled by a registered dietitian nutritionist on how to follow a MedSD, which included increased sources of n-3 polyunsaturated fatty acids, fruits, and vegetables, and decreased saturated fat, n-6 polyunsaturated fatty acids, and simple sugars for 12 weeks. To maintain isocaloric conditions, participants were asked to substitute sources of saturated fat and refined carbohydrates for extra virgin olive oil (3 T/day), walnuts (1.5 oz/day), and fatty fish (3 to 5 servings/wk), which were provided at 3-week intervals.
MAIN OUTCOME MEASURES: Dietary adherence measures included the Mediterranean Diet Score, 3-day diet records, and serum fatty acid and lipid profiles.
STATISTICAL ANALYSES: Mixed model longitudinal analyses were conducted to assess changes over time (Weeks 0, 12, and 24) in the outcome variables.
RESULTS: Mediterranean Diet Score increased by 8.9 points ($P<0.001$) after the MedSD phase. Dietary sugar decreased by 10.8 g ($P<0.05$), total dietary n-3 increased by 1.6 g ($P<0.01$), total dietary n-6 increased by 5.5 g ($P<0.01$), and dietary n-6:n3 ratio decreased by 3.6 units ($P<0.01$). In serum, 22:6 (n-3), 20:5 (n-3), and 18:3 (n-3) increased ($P<0.001$, $P<0.01$, and $P<0.001$, respectively), and 14:0, 16:0, 17:0, 20:4 (n-6), 22:4 (n-6) declined after the intervention ($P<0.01$, $P<0.001$, $P<0.01$, $P<0.01$, and $P<0.001$, respectively), which support a change in dietary intake toward a MedSD. Serum high-density lipoprotein cholesterol levels increased by 3.8 mg/dL (0.098 mmol/L) ($P<0.05$) and serum triglyceride levels decreased by 11.6 mg/dL (0.131 mmol/L) ($P<0.10$).

CONCLUSIONS: A pilot study of a 12-week MedSD intervention with counseling from a registered dietitian nutritionist can favorably influence the dietary pattern and lipid profile of postmenopausal women living in the United States.

PMID: 27568885 [PubMed - as supplied by publisher]

Semergen. 2016 Aug 23. pii: S1138-3593(16)30138-1.

[Baseline characteristics and clinical management of the first 3,000 patients enrolled in the IBERICAN study (Identification of the Spanish population at cardiovascular and renal risk)].

[Article in Spanish]

Cinza Sanjurjo S, Prieto Díaz MÁ, Llisterri Caro JL, Pallarés Carratalá V, Barquilla García A, Rodríguez Padial L, Díaz Rodríguez Á, Polo García J, Vergara Martín J, Vidal Pérez R, Rodríguez Roca GC; en representación de los investigadores del estudio IBERICAN.

OBJECTIVES: To determine the prevalence and incidence of cardiovascular risk factors in Spain, as well as cardiovascular events, in Spanish adult population attended in primary care.
METHODOLOGY: IBERICAN is a longitudinal, observational, multicenter study in which patients aged 18 to 85years attended in primary care health center in Spain are being included. The obtained cohort will be followed annually for at least 5years. The estimated final sample is 7,000 patients. The baseline characteristics of the second cut (n=3,042) are presented.
RESULTS: The mean age of the subjects included is 57.9±14.6 years, and 55.5% are women. 54.9% live in urban habitat, and 57.3% have primary education. 50.3% had dyslipidemia, 47.4% hypertension, 29.7% physical inactivity, 28.2% abdominal obesity and 19% diabetes mellitus. The degree of control of hypertension, dyslipidemia and type2 diabetes was 58.5%, 25.8% and 75.9%. 28.2% have criteria for metabolic syndrome. 15.6% of patients had previous cardiovascular disease. 7.8% have a history of coronary heart disease, a glomerular filtration rate <60ml/min (CKD-EPI) 8.4%, microalbuminuria 9.6%, atrial fibrillation 5.5%, stroke 4.6%, and heart failure 2.9%.
CONCLUSIONS: Although the population treated in primary care is relatively young, the high prevalence of risk factors, their poor control and the existence of previous cardiovascular disease will determine the impact on the prognosis of the cohort.

PMID: 27567214 [PubMed - as supplied by publisher]

Diabetes Res Clin Pract. 2016 Oct;120:156-61.

Hypertriglyceridemia: A simple approach to identify insulin resistance and enhanced cardio-metabolic risk in patients with prediabetes.

Abbasi F, Kohli P, Reaven GM, Knowles JW.

AIMS: Prediabetes (PreDM) is a metabolically heterogeneous condition, differing in degree of insulin resistance and risk of type 2 diabetes mellitus and coronary heart disease (CHD). This study was initiated to evaluate the hypothesis that a fasting plasma triglyceride (TG) concentration ⩾1.7mmol/L can aid in identifying the subset of individuals with PreDM who are most insulin resistant and at greatest risk to develop CHD as well as type 2 diabetes mellitus.
METHODS: In this cross-sectional study, measurements were made of: (1) steady-state plasma glucose (SSPG) concentration during the insulin suppression test to ascertain degree of insulin resistance and (2) conventional CHD risk factors in 587 apparently healthy individuals with normal fasting plasma glucose (NFG, n=370) or PreDM (n=217).
RESULTS: Subjects with PreDM were significantly (P<0.001) more insulin resistant (higher SSPG concentrations) and had a more adverse CHD risk profile than those with NFG. A TG concentration ⩾1.7mmol/L identified a subset of individuals with PreDM (38%) who had a higher mean SSPG concentration (11.3±3.5mmol/L vs. 9.3±3.9mmol/L, P<0.001), were more likely to be insulin resistant (66% vs. 39%, P<0.001), and had a more adverse CHD risk factor profile.
CONCLUSIONS: Measurement of fasting TG concentration in individuals with PreDM may provide a simple clinical approach to identify those who are insulin resistant, at enhanced risk of CHD, and more likely to develop type 2 diabetes mellitus.

PMID: 27565692 [PubMed - in process]

Ann Med. 2016 Aug 25:1-9. [Epub ahead of print]

Impact of cardiovascular risk factor control on long-term cardiovascular and all-cause mortality in the general population.

Bérard E, Bongard V, Dallongeville J , Arveiler D, Amouyel P, Wagner A, Cottel D, Haas B, Ruidavets JB, Ferrières J.

PURPOSE: In clinical trials, lowering cardiovascular risk factors (CVRFs) reduces cardiovascular (CV) morbidity and mortality. We assessed the impact of controlling CVRFs at baseline on long-term all-cause and CV mortality in the general population.
METHODS: Analysis was based on the Third French MONICA population-based survey (1994-1997). Vital status was obtained 18 years after inclusion. Statistical analysis was based on Cox-modelling.
RESULTS: About 3402 participants aged 35-64 were included and 569 (17%) presented with 2 or more uncontrolled CVRFs, 1194 (35%) had one uncontrolled CVRF, 770 (23%) had all CVRFs controlled under treatment (or were former smokers) and 869 (25%) exhibited no CVRF. During the follow-up, 389 deaths occurred (76 were due to CV causes). Considering all-cause mortality, the adjusted hazard ratios (aHR) for subjects with one uncontrolled CVRF and for those with two or more were 1.38 [1.03-1.83] ($p=0.029$) and 1.80 [1.33-2.43]($p<0.001$), respectively, as compared with subjects presenting with all their CVRFs controlled. For subjects exhibiting no CVRF, the aHR was 0.66 [0.44-0.98] ($p=0.042$). Considering CV mortality, aHRs for subjects presenting with one and two or more uncontrolled CVRF were 1.70 [0.84-3.42] ($p=0.138$) and 3.67 [1.85-7.29] ($p<0.001$), respectively, as compared with subjects who had either all their CVRFs controlled or exhibited no CVRF.
CONCLUSIONS: Failing to control CVRFs significantly increases long-term all-cause and CV mortality in the French general population. Key messages Only 30% of patients with cardiovascular risk factors were controlled. Failing to control cardiovascular risk factors significantly increased long-term cardiovascular and all-cause mortality. A residual risk for all-cause mortality remained even when patients were controlled.

PMID: 27558835 [PubMed - as supplied by publisher]

PLoS One. 2016 Aug 23;11(8):e0161770. doi: 10.1371/journal.pone.0161770. eCollection 2016.

Cardiovascular Risk Factors of Adults Age 20-49 Years in the United States, 1971-2012: A Series of Cross-Sectional Studies.

Casagrande SS, Menke A, Cowie CC.

BACKGROUND: The health of younger adults in the U.S. has important public health and economic-related implications. However, previous literature is insufficient to fully understand how the health of this group has changed over time. This study examined generational differences in cardiovascular risk factors of younger adults over the past 40 years.
METHODS: Data were from 6 nationally representative cross-sectional National Health and Nutrition Examination Surveys (1971-2012; N = 44,670). Participants were adults age 20-49 years who self-reported sociodemographic characteristics and health conditions, and had examination/laboratory measures for hypertension, hyperlipidemia, diabetes, obesity, and chronic kidney disease. Prevalences of sociodemographic characteristics and health status were determined by study period. Logistic regression was used to determine the odds [odds ratio (OR), 95% confidence interval] of health conditions by study period: models adjusted only for age, sex, and race, and fully adjusted models additionally adjusted for socioeconomic characteristics, smoking, BMI, diabetes, and/or hypertension (depending on the outcome) were assessed.
RESULTS: Participants in 2009-2012 were significantly more likely to be obese and have diabetes compared to those in 1971-1975 (OR = 4.98, 3.57-6.97; OR = 3.49, 1.59-7.65, respectively, fully adjusted). Participants in 2009-2012 vs. 1988-1994 were significantly more likely to have had hypertension but uncontrolled hypertension was significantly less likely (OR = 0.67, 0.52-0.86, fully adjusted). There was no difference over time for high cholesterol, but uncontrolled high cholesterol was significantly less likely in 2009-2012 vs. 1988-1994 (OR = 0.80, 0.68-0.94, fully adjusted). The use of hypertensive and cholesterol medications increased while chronic kidney and cardiovascular diseases were relatively stable.
CONCLUSIONS: Cardiovascular risk factors of younger U.S. adults have worsened over the past 40 years, but treatment for hypertension and high cholesterol has improved. The sub-optimal and worsening health in younger adults may have a substantial impact on health care utilization and costs, and should be considered when developing health care practices.

PMCID: PMC4995093
PMID: 27552151 [PubMed - in process]

Circulation. 2016 Aug 22. pii: CIR.0000000000000439. [Epub ahead of print]

Added Sugars and Cardiovascular Disease Risk in Children: A Scientific Statement From the American Heart Association.

Vos MB, Kaar JL, Welsh JA, Van Horn LV, Feig DI, Anderson CA, Patel MJ, Cruz Munos J, Krebs NF, Xanthakos SA, Johnson RK; American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Clinical Cardiology; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing; Council on Epidemiology and Prevention; Council on Functional Genomics and Translational Biology; and Council on Hypertension.

BACKGROUND: Poor lifestyle behaviors are leading causes of preventable diseases globally. Added sugars contribute to a diet that is energy dense but nutrient poor and increase risk of developing obesity, cardiovascular disease, hypertension, obesity-related cancers, and dental caries.

METHODS AND RESULTS: For this American Heart Association scientific statement, the writing group reviewed and graded the current scientific evidence for studies examining the cardiovascular health effects of added sugars on children. The available literature was subdivided into 5 broad subareas: effects on blood pressure, lipids, insulin resistance and diabetes mellitus, nonalcoholic fatty liver disease, and obesity.

CONCLUSIONS: Associations between added sugars and increased cardiovascular disease risk factors among US children are present at levels far below current consumption levels. Strong evidence supports the association of added sugars with increased cardiovascular disease risk in children through increased energy intake, increased adiposity, and dyslipidemia. The committee found that it is reasonable to recommend that children consume ≤25 g (100 cal or ≈6 teaspoons) of added sugars per day and to avoid added sugars for children <2 years of age. Although added sugars most likely can be safely consumed in low amounts as part of a healthy diet, few children achieve such levels, making this an important public health target.

PMID: 27550974 [PubMed - as supplied by publisher]

Circulation. 2016 Aug 23;134(8):599-610.

Trajectories of Cardiovascular Risk Factors and Incidence of Atrial Fibrillation Over a 25-Year Follow-Up: The ARIC Study (Atherosclerosis Risk in Communities).

Norby FL, Soliman EZ, Chen LY, Bengtson LG, Loehr LR, Agarwal SK, Alonso A.

BACKGROUND: Timing and trajectories of cardiovascular risk factor (CVRF) development in relation to atrial fibrillation (AF) have not been described previously. We assessed trajectories of CVRF and incidence of AF over 25 years in the ARIC study (Atherosclerosis Risk in Communities).

METHODS: We assessed trajectories of CVRF in 2456 individuals with incident AF and 6414 matched control subjects. Subsequently, we determined the association of CVRF trajectories with the incidence of AF among 10 559 AF-free individuals (mean age, 67 years; 52% men; 20% blacks). Risk factors were measured during 5 examinations between 1987 and 2013. Cardiovascular events, including incident AF, were ascertained continuously. We modeled the prevalence of risk factors and cardiovascular outcomes in the period before and after AF diagnosis and the corresponding index date for control subjects using generalized estimating equations. Trajectories in risk factors were identified with latent mixture modeling. The risk of incident AF by trajectory group was examined with Cox models.

RESULTS: The prevalence of stroke, myocardial infarction, and heart failure increased steeply during the time close to AF diagnosis. All CVRFs were elevated in AF cases compared with controls >15 years before diagnosis. We identified distinct trajectories for all the assessed CVRFs. In general, individuals with trajectories denoting long-term exposure to CVRFs had increased AF risk even after adjustment for single measurements of the CVRFs.

CONCLUSIONS: AF patients have increased prevalence of CVRF many years before disease diagnosis. This analysis identified diverse trajectories in the prevalence of these risk factors, highlighting their different roles in AF pathogenesis.

PMCID: PMC4999250 [Available on 2017-08-23]
PMID: 27550968 [PubMed - in process]

Eur Heart J Cardiovasc Imaging. 2016 Aug 22. pii: jew174. [Epub ahead of print]

Liver fat is related to cardiovascular risk factors and subclinical vascular disease: the Rotterdam Study.

Wolff L, Bos D, Murad SD, Franco OH, Krestin GP, Hofman A, Vernooij MW, van der Lugt A.

AIMS: Increasing evidence suggests involvement of the amount of liver fat in the development of cardiovascular disease. We investigated the relation of liver fat with cardiovascular risk factors and subclinical vascular disease in the general population.
METHODS AND RESULTS: Between 2003 and 2006, 2351 persons from the population-based Rotterdam Study (mean age 69.6 ± 6.7 years, 47.2% males) underwent non-enhanced computed tomography. We measured the mean liver attenuation value in Hounsfield units and quantified the following markers of subclinical vascular disease: epicardial fat volume and volumes of coronary (CAC), aortic (AAC), extracranial (ECAC), and intracranial carotid calcification (ICAC). Using linear regression, we investigated associations between traditional cardiovascular risk factors and mean liver attenuation. We also investigated relations of mean liver attenuation with markers of subclinical vascular disease, adjusting for cardiovascular risk factors. We found strong associations of waist circumference, diastolic blood pressure, and diabetes with lower mean liver attenuation [multivariable-adjusted beta per unit increase in waist circumference: -2.54 (95% CI: -3.10; -1.99); diastolic blood pressure: -0.52 (95% CI: -0.88; -0.17); and the presence of diabetes: -21.91 (95% CI: -31.76; -12.06)]. Moreover, we found that larger mean liver attenuation values were associated with smaller volumes of epicardial fat and CAC, independent of cardiovascular risk factors [beta per 1-SD increase in mean liver attenuation value: -0.05 (95% CI: -0.08; -0.02) and -0.05 (95% CI: -0.10; -0.01), respectively].
CONCLUSION: Larger amounts of liver fat are related to larger volumes of epicardial fat and CAC, independent of traditional cardiovascular risk factors, providing important novel insights into the role of liver fat as a marker of vascular disease.

PMID: 27550661 [PubMed - as supplied by publisher]

West J Nurs Res. 2016 Aug 22. pii: 0193945916664900. [Epub ahead of print]

Cardiorespiratory Fitness, Adiposity, and Cardiometabolic Risk Factors in Schoolchildren: The FUPRECOL Study.

Ramírez-Vélez R, Daza F, González-Jiménez E, Schmidt-RioValle J, González-Ruíz K, Correa-Bautista JE.

The aim of this study was to investigate the association between cardiorespiratory fitness (CRF) and cardiovascular risk factors (CVRF) in schoolchildren. A secondary aim was to evaluate the degree of association between overall and abdominal adiposity and CRF in a total of 1,875 children and adolescents attending public schools. We expressed CRF performance as the nearest stage (minute) completed and the estimated peak oxygen consumption. A CVRF (Z score) was calculated and participants were divided into tertiles according to low and high levels of overall (sum of the skinfold thicknesses) and abdominal adiposity. Schoolchildren with a high-level of overall adiposity demonstrated significant differences in seven of the 10 variables analyzed (i.e., systolic and diastolic blood pressure, triglycerides, triglycerides/high density lipoproteins [HDL-c] ratio, total cholesterol, glucose, C-reactive protein [usCRP], HDL-c, low density lipoproteins [LDL-c], and cardiovascular risk score). Schoolchildren with high levels of both overall and abdominal adiposity and low CRF had the least favorable CVRF score.

PMID: 27550468 [PubMed - as supplied by publisher]

BMC Med Res Methodol. 2016 Aug 22;16:104.

Population cardiovascular health and urban environments: the Heart Healthy Hoods exploratory study in Madrid, Spain.

Bilal U, Díez J, Alfayate S, Gullón P, Del Cura I, Escobar F, Sandín M, Franco M; HHH Research Group.

BACKGROUND: Our aim is to conduct an exploratory study to provide an in-depth characterization of a neighborhood's social and physical environment in relation to cardiovascular health. A mixed-methods approach was used to better understand the food, alcohol, tobacco and physical activity domains of the urban environment.
METHODS: We conducted this study in an area of 16,000 residents in Madrid (Spain). We obtained cardiovascular health and risk factors data from all residents aged 45 and above using Electronic Health Records from the Madrid Primary Health Care System. We used several quantitative audit tools to assess: the type and location of food outlets and healthy food availability; tobacco and alcohol points of sale; walkability of all streets and use of parks and public spaces. We also conducted 11 qualitative interviews with key informants to help understanding the relationships between urban environment and cardiovascular behaviors. We integrated quantitative and qualitative data following a mixed-methods merging approach.
RESULTS: Electronic Health Records of the entire population of the area showed similar prevalence of risk factors compared to the rest of Madrid/Spain (prevalence of diabetes: 12 %, hypertension: 34 %, dyslipidemia: 32 %, smoking: 10 %, obesity: 20 %). The food environment was very dense, with many small stores (n = 44) and a large food market with 112 stalls. Residents highlighted the importance of these small stores for buying healthy foods. Alcohol and tobacco environments were also very dense (n = 91 and 64, respectively), dominated by bars and restaurants (n = 53) that also acted as food services. Neighbors emphasized the importance of drinking as a socialization mechanism. Public open spaces were mostly used by seniors that remarked the importance of accessibility to these spaces and the availability of destinations to walk to.
CONCLUSION: This experience allowed testing and refining measurement tools, drawn from epidemiology, geography, sociology and anthropology, to better understand the urban environment in relation to cardiovascular health.

PMCID: PMC4994419
PMID: 27549991 [PubMed - in process]

Int J Cardiol. 2016 Nov 1;222:1116-21.

Risk factors measured in middle-aged men predicting coronary events in geriatric age.

Menotti A, Puddu PE.

OBJECTIVES: To explore the duration of the predictive power of major coronary risk factors measured on a single occasion in middle aged men for the occurrence of coronary heart disease (CHD) incidence and mortality during 50years of follow-up.
MATERIAL AND METHODS: In the Italian Rural Areas of the Seven Countries Study 1677 CHD-free men aged 40-59 were enrolled in 1960 and age, cigarette smoking, systolic blood pressure and serum cholesterol were measured. During 50years of follow-up 1641 men died, 451 had a major fatal or non-fatal CHD event (incidence) and 263 died from CHD. Five partitioned Cox proportional hazards models were computed, one for each independent and subsequent 10-year period. Five 10-year partitioned hazard scores, derived from multivariable coefficients, were cumulated for each risk factor and plotted against time.
RESULTS: The resulting curves showed increasing time trends for CHD incidence and mortality as a function of cigarette smoking, systolic blood pressure and serum cholesterol for the first 30-40years followed by a decline in the association that was more evident for serum cholesterol. The curves fit straight lines with large correlation coefficient ranging 0.82 to 0.99. The loss of predictive power after 30-40years was confirmed in a model covering 50years of follow-up and including the interaction term of risk factors/time.
CONCLUSION: A single measurement of major coronary risk factors is associated with CHD incidence and mortality for at least 30-40years of follow-up, entering the gerontologic age.

PMID: 27545085 [PubMed - in process]

Ther Clin Risk Manag. 2016 Aug 8;12:1223-9.

The risk factors and prevention of cardiovascular disease: the importance of electrocardiogram in the diagnosis and treatment of acute coronary syndrome.

Rosiek A, Leksowski K.

Acute coronary syndrome is a leading cause of emergency medical treatment and hospitalization in Poland. High-speed electrocardiogram (ECG) has shown good accuracy of the initial diagnosis and of the final diagnosis in treated cardiac patients. Initial diagnosis and definitive diagnosis were analyzed statistically ($P<0.0001$). Although much is said about the prevention of sudden death in heart failure, the elimination of risk factors health care in Poland does not pay due attention to the need for early diagnosis and ECG analysis (at the stage of prevention). This article presents the inclusion of ECG in the prevention process and shows that it allows for early detection of cardiovascular diseases. In Poland, ST-segment elevation myocardial infarction patients are identified in the ambulance that reduces time to door-to-balloon.

PMCID: PMC4982493
PMID: 27540297 [PubMed]

Curr Heart Fail Rep. 2016 Aug 18. [Epub ahead of print]

Cardiometabolic Syndrome and Increased Risk of Heart Failure.

von Bibra H , Paulus W, St John Sutton M.

Approximately 50 % of patients with heart failure have diastolic heart failure (HFPEF) with the major predisposing risk factors age, inactivity, obesity, insulin resistance (IR), type-2 diabetes, and hypertension. The prognosis of HFPEF is comparable to that of systolic heart failure, but without any specific or effective treatment. This review presents a biomathematically corrected diagnostic approach h for quantification of diastolic dysfunction (DD) via the age dependency of diastolic function. Pathophysiological mechanisms for DD in the cardiometabolic syndrome (CMS) are mainly based on downstream effects of IR including insufficient myocardial energy supply. The second section discusses therapeutic strategies for the control and therapy of CMS, IR, and the associated DD/HFPEF with a focus on dietary therapy that is independent of weight loss but improves all manifestations of the CMS and reduces cardiovascular risk.

PMID: 27539049 [PubMed - as supplied by publisher]

Healthc Inform Res. 2016 Jul;22(3):196-205.

Detection of Cardiovascular Disease Risk's Level for Adults Using Naive Bayes Classifier.

Miranda E, Irwansyah E, Amelga AY, Maribondang MM, Salim M.

OBJECTIVES: The number of deaths caused by cardiovascular disease and stroke is predicted to reach 23.3 million in 2030. As a contribution to support prevention of this phenomenon, this paper proposes a mining model using a naïve Bayes classifier that could detect cardiovascular disease and identify its risk level for adults.

METHODS: The process of designing the method began by identifying the knowledge related to the cardiovascular disease profile and the level of cardiovascular disease risk factors for adults based on the medical record, and designing a mining technique model using a naïve Bayes classifier. Evaluation of this research employed two methods: accuracy, sensitivity, and specificity calculation as well as an evaluation session with cardiologists and internists. The characteristics of cardiovascular disease are identified by its primary risk factors. Those factors are diabetes mellitus, the level of lipids in the blood, coronary artery function, and kidney function. Class labels were assigned according to the values of these factors: risk level 1, risk level 2 and risk level 3.

RESULTS: The evaluation of the classifier performance (accuracy, sensitivity, and specificity) in this research showed that the proposed model predicted the class label of tuples correctly (above 80%). More than eighty percent of respondents (including cardiologists and internists) who participated in the evaluation session agree till strongly agreed that this research followed medical procedures and that the result can support medical analysis related to cardiovascular disease.

CONCLUSIONS: The research showed that the proposed model achieves good performance for risk level detection of cardiovascular disease.

PMCID: PMC4981580
PMID: 27525161 [PubMed]

Int J Mol Sci. 2016 Aug 3;17(8). pii: E1265. doi: 10.3390/ijms17081265.

The Role of Dietary Inflammatory Index in Cardiovascular Disease, Metabolic Syndrome and Mortality.

Ruiz-Canela M, Bes-Rastrollo M, Martínez-González MA.

Inflammation is an underlying pathophysiological process in chronic diseases, such as obesity, type 2 diabetes mellitus and cardiovascular disease. In fact, a number of systematic reviews have shown the association between inflammatory biomarkers, such as CRP, IL-1β, IL-6, TNF-α, IL-4, or IL-10, and cardio-metabolic diseases. Diet is one of the main lifestyle-related factors which modulates the inflammatory process. Different individual foods and dietary patterns can have a beneficial health effect associated with their anti-inflammatory properties. The dietary inflammatory index (DII) was recently developed to estimate the inflammatory potential of overall diet. The aim of this review is to examine the findings of recent papers that have investigated the association between the DII, cardio-metabolic risk factors and cardiovascular disease. The relevance of the DII score in the association between inflammation and cardio-metabolic diseases is critically appraised, as well as its role in the context of healthy dietary patterns. We conclude that the DII score seems to be a useful tool to appraise the inflammatory capacity of the diet and to better understand the relationships between diet, inflammation, and cardio-metabolic diseases.

PMCID: PMC5000663
PMID: 27527152 [PubMed - in process]

Rev Esp Cardiol (Engl Ed). 2016 Aug 9. pii: S1885-5857(16)30152-9.

Social Inequalities in Cardiovascular Risk Factors Among Older Adults in Spain: The Seniors-ENRICA Study.

Pérez-Hernández B, García-Esquinas E, Graciani A, Guallar-Castillón P, López-García E, León-Muñoz LM, Banegas JR, Rodríguez-Artalejo F.

INTRODUCTION AND OBJECTIVES: To examine the distribution of the main cardiovascular risk factors (CVRF) according to socioeconomic level (SEL) among older adults in Spain.
METHODS: A cross-sectional study conducted in 2008-2010 with 2699 individuals representative of the noninstitutionalized Spanish population aged ≥ 60 years. Socioeconomic level was assessed using educational level, occupation, and father's occupation. The CVRF included behavioral and biological factors and were measured under standardized conditions.
RESULTS: In age- and sex-adjusted analyses, higher educational level was associated with a higher frequency of moderate alcohol consumption and leisure time physical activity, and less time spent watching television. An inverse educational gradient was observed for frequency of obesity (odds ratio [OR] in university vs primary level or below education, 0.44; 95% confidence interval [95%CI], 0.33-0.57; P-trend < .01), metabolic syndrome (OR = 0.56; 95%CI, 0.43-0.71; P-trend < .01), diabetes (OR = 0.68; 95%CI, 0.49-0.95; P-trend < .05), and cardiovascular disease (OR = 0.52; 95%CI, 0.29-0.91; P-trend < .05). Compared with a nonmanual occupation, having a manual occupation was associated with a higher frequency of several CVRF; this association was stronger than that observed for father's occupation. Differences in CVRF across SELs were generally greater in women than in men.
CONCLUSIONS: There are significant social inequalities in CVRF among older adults in Spain. Reducing these inequalities, bringing the levels of CVRF in those from lower SEL in line with the levels seen in higher SEL, could substantially reduce the prevalence of CVRF in the older adult population.

PMID: 27519455 [PubMed - as supplied by publisher]

Nurs Health Sci. 2016 Aug 11. doi: 10.1111/nhs.12299. [Epub ahead of print]

Association of cardiovascular emerging risk factors with acute coronary syndrome and stroke: A case-control study.

Martínez Linares JM, Guisado Barrilao R, Ocaña Peinado FM, Salgado Parreño FJ.

In this study, we estimated the risk of acute coronary syndrome and stroke associated with several emerging cardiovascular risk factors. This was a case-control study, where an age - and sex-matched acute coronary syndrome group and stroke group were compared with controls. Demographic and clinical data were collected through patient interviews, and blood samples were taken for analysis. In the bivariate analysis, all cardiovascular risk factors analyzed showed as predictors of acute coronary syndrome and stroke, except total cholesterol and smoking. In the multivariate logistic regression model for acute coronary syndrome, hypertension and body mass index, N-terminal section brain natriuretic peptide and pregnancy-associated plasma protein-A were independent predictors. For stroke, the predictors were hypertension, diabetes mellitus, body mass index, and N-terminal section brain natriuretic peptide. Controlling for age, sex, and classical cardiovascular risk factors, N-terminal section brain natriuretic peptide and pregnancy-associated plasma protein-A were independent emerging cardiovascular risk factors for acute coronary syndrome, but pregnancy-associated plasma protein-A was not for stroke. High levels of cardiovascular risk factors in individuals with no episodes of cardiovascular disease requires the implementation of prevention programs, given that at least half of them are modifiable.

PMID: 27510402 [PubMed - as supplied by publisher]

Int J Adolesc Med Health. 2016 Aug 10. pii: /j/ijamh.ahead-of-print/ijamh-2016-0045/ijamh-2016-0045.xml.

Eating habits and presence of cardiovascular risks in children.

Barbalho SM, Fontana LC, Finalli EF, Martuchi KA, Ferreira MC, Filho ME, Cerri SV, Sasaki V, Spada AP, Oshiiwa M, Santos MC, Pescinini-Salzedas LM, Bragante LS.

INTRODUCTION: The changes in the eating habits associated with physical inactivity are directly related to the increase in the prevalence of obesity and associated diseases such as diabetes mellitus (DM), metabolic syndrome and cardiovascular diseases.
OBJECTIVE: The aim of this study was to investigate the relationship between the frequency of consumption of some food groups (snacks, fruits, vegetables and candies), physical exercise, nutritional classification and biochemical profile in children.
METHODS: After the approval of the Ethics Committee, we studied 882 schoolchildren ranging between 6 and 10 years of age. Biochemical and anthropometric evaluations were performed and questionnaires were used in order to check the eating habits and physical activity.
RESULTS: Our results showed that we may relate the consumption of snacks, fruits, vegetables or candies with modifications in the glycemia, triglycerides, total cholesterol, HDL-c, and LDL-c but we did not observe association with the nutritional classification. It is noteworthy to say that almost 50% of the studied children were overweight or obese and many presented alterations in the lipid and glucose levels.
CONCLUSION: Our results also show that many children have abnormal levels of lipids and glycemia and a great number of them are classified as overweight or obese. In this context, we can say that urgent approaches are needed to be carried out by a multidisciplinary team in order to improve the diet and reduces the risk factors in this population of children and prevent secondary diseases in adolescence and adulthood.

PMID: 27508956 [PubMed - as supplied by publisher]

Ann Transl Med. 2016 Jul;4(13):253. doi: 10.21037/atm.2016.06.18.

Impact of gestational risk factors on maternal cardiovascular system.

Perales M, Santos-Lozano A, Sanchis-Gomar F, Luaces M, Pareja-Galeano H, Garatachea N, Barakat R, Lucia A.

BACKGROUND: Scarce evidence is available on the potential cardiovascular abnormalities associated with some common gestational complications. We aimed to analyze the potential maternal cardiac alterations related to gestational complications, including body mass index (BMI) >25 kg/m(2), gaining excessive weight, or developing antenatal depression.
METHODS: The design of this study was a secondary analysis of a randomized controlled trial. Echocardiography was performed to assess cardiovascular indicators of maternal hemodynamic, cardiac remodeling and left ventricular (LV) function in 59 sedentary pregnant women at 20 and 34 weeks of gestation. RESULTS: Starting pregnancy with a BMI >25 kg/m(2), gaining excessive weight, and developing antenatal depression had no cardiovascular impact on maternal health (P value >0.002). Depressed women were more likely to exceed weight gain recommendations than non-depressed women (P value <0.002).
CONCLUSIONS: The evaluated gestational complications seem not to induce cardiovascular alterations in hemodynamic, remodeling and LV function indicators. However, developing antenatal depression increases the risk of an excessive weight gain. This finding is potentially important because excessive weight gain during pregnancy associates with a higher risk of cardiovascular diseases (CVD) later in life.

PMCID: PMC4958727
PMID: 27500154 [PubMed]

Atherosclerosis. 2016 Oct;253:164-170.

The relationship between the dietary inflammatory index and risk of total cardiovascular disease, ischemic heart disease and cerebrovascular disease: Findings from an Australian population-based prospective cohort study of women.

Vissers LE, Waller MA, van der Schouw YT, Hebert JR, Shivappa N, Schoenaker DA, Mishra GD.

BACKGROUND AND AIMS: Recently, a pro-inflammatory diet based on a dietary inflammatory index (DII) has been related to higher CVD risk in general population, but this has not been investigated among women.
METHODS: We investigated the relationship between DII and risk of total CVD and CVD subgroups (myocardial infarction, ischemic heart disease, stroke and cerebrovascular disease) in a prospective cohort of 6972 Australian women aged 50-55 years at baseline in 2001. We used clinical and procedure information from inpatient hospital separation registries, information on use of health care services, and from the causes-of-death registry to ascertain CVD outcomes during 11-year follow up. The association between baseline DII score and cardiovascular endpoints was analysed through cox-regression, with correction for demographic and cardiovascular risk factors.
RESULTS: We identified 335 incident cases of CVD and 191 cases of ischaemic heart disease (including 69 myocardial infarctions) and 59 cases of cerebrovascular disease (including 40 cases of stroke). A statistically significant higher risk of myocardial infarction was observed in analyses using DII scores as a continuous variable with a hazard ratio of 1.46 (95% confidence interval 1.12-1.89), but this was attenuated by further adjustment for other known cardiovascular risk factors. No association was found for total CVD, ischaemic heart diseases, or cerebrovascular disease.
CONCLUSIONS: There was no statistically significant association between the dietary inflammatory index and risk of total cardiovascular disease, ischemic heart disease, myocardial infarction, cerebrovascular disease or stroke in this population of mid-aged Australian women. Associations were not different for postmenopausal women.

PMID: 27498398 [PubMed - in process]

Can J Diabetes. 2016 Aug;40(4):348-54.

Review of Dietary Practices of the 21st Century: Facts and Fallacies.

Subhan FB, Chan CB.

The prevalence of chronic metabolic diseases, such as diabetes, cardiovascular diseases and cancer, is increasing around the world. Nutritional interventions can reduce the prevalence and provide effective treatment, even when weight loss is not dramatic. The 2013 Canadian Diabetes Association Clinical Practice Guidelines concluded that certain dietary patterns and popular weight-loss diets had sufficient evidence to suggest their use by individuals with diabetes, but many other diet patterns and diets exist. Our specific objectives were to review the nutritional quality of various dietary patterns and diets, with emphasis on the evidence that they are efficacious for weight loss, glycemic control and cardiovascular risk factors.

PMID: 27497150 [PubMed - in process]

Pulse (Basel). 2016 Jul;4(1):24-7.

Carotid Stiffness: A Novel Cerebrovascular Disease Risk Factor.

van Sloten TT, Stehouwer CD.

Carotid stiffening is considered an important element in the pathogenesis of cerebrovascular diseases. These include stroke as well as vascular dementia and depression. However, results of individual studies evaluating the association between carotid stiffening and incident stroke have been inconsistent. Therefore, we have conducted a systematic review and meta-analysis, showing that carotid stiffening is associated with incident stroke independently of cardiovascular risk factors and aortic stiffness. In addition, carotid stiffening improved stroke risk prediction beyond the Framingham stroke risk factors and aortic stiffness. Other studies have shown that carotid stiffening is associated with a higher incidence of vascular dementia and depressive symptoms. This suggests that carotid stiffness is a potential separate target for prevention strategies of cerebrovascular disease.

PMCID: PMC4949361
PMID: 27493900 [PubMed]

Open Heart. 2016 Jul 12;3(2):e000358.

Cardiovascular disease risk factors in relation to smoking behaviour and history: a population-based cohort study.

Keto J, Ventola H, Jokelainen J, Linden K, Keinänen-Kiukaanniemi S, Timonen M, Ylisaukko-Oja T, Auvinen J.

OBJECTIVE: To investigate how individual risk factors for cardiovascular disease (CVD) (blood pressure, lipid levels, body mass index, waist and hip circumference, use of antihypertensive or hypolipidemic medication, and diagnosed diabetes) differ in people aged 46 years with different smoking behaviour and history.

METHODS: This population-based cohort study is based on longitudinal data from the Northern Finland Birth Cohort 1966 project. Data were collected at the 31-year and 46-year follow-ups, when a total of 5038 and 5974 individuals participated in clinical examinations and questionnaires. Data from both follow-ups were available for 3548 participants. In addition to individual CVD risk factors, Framingham and Systematic Coronary Risk Evaluation (SCORE) algorithms were used to assess the absolute risk of a CVD event within the next decade.

RESULTS: The differences in individual risk factors for CVD reached statistical significance for some groups, but the differences were not consistent or clinically significant. There were no clinically significant differences in CVD risk as measured by Framingham or SCORE algorithms between never smokers, recent quitters and former smokers (7.5%, 7.4%, 8.1% for men; 3.3%, 3.0%, 3.2% for women; $p<0.001$).

CONCLUSIONS: The effect of past or present smoking on individual CVD risk parameters such as blood pressure and cholesterol seems to be of clinically minor significance in people aged 46 years. In other words, smoking seems to be above all an independent risk factor for CVD in the working-age population. Quitting smoking in working age may thus reduce calculated CVD risk nearly to the same level with people who have never smoked.

PMCID: PMC4947752
PMID: 27493759 [PubMed]

J Pediatr. 2016 Oct;177:167-72.

Social Determinants of Health Are Associated with Modifiable Risk Factors for Cardiovascular Disease and Vascular Function in Pediatric Type 1 Diabetes.

Inman M, Daneman D, Curtis J, Sochett E, Clarke A, Dunger DB, Deanfield J, Mahmud FH.

OBJECTIVE: To evaluate the relationship between social determinants of health (SDH) and cardiovascular disease (CVD) risk factors as well as a measure of arterial stiffness in adolescents with type 1 diabetes (T1D).

STUDY DESIGN: SDH were measured with the validated Ontario Marginalization Index, derived from deidentified postal code data and stratified by quintile (first =least deprived; fifth =most deprived). SDH dimensions included material deprivation; ethnic concentration; and measures of dependency and residential instability. Metabolic control (hemoglobin A1c), cardiovascular risk metrics, and pulse wave velocity, as a measure of arterial stiffness, were related to SDH. Data were evaluted from a cohort of Canadian adolescents within the Adolescent Diabetes Cardiorenal Intervention Trial, a T1D clinical trial

RESULTS: A total of 704 participants were evaluated, and significant differences in hemoglobin A1c were evident at the extremes of material deprivation (8.4% vs 9.1% for least vs most deprived, P<.01). CVD risk factors were analyzed in 199 participants, with the most deprived reporting significantly less exercise (P=.004) and increased rates of smoking (P=.008). Increased material deprivation was associated with fewer metrics of "ideal" cardiovascular health attained. Arterial stiffness, as measured by pulse wave velocity, was associated positively with age, body mass index z score, and material deprivation.

CONCLUSION: Increased material deprivation was associated with poorer glycemic control. Modifiable, lifestyle-related risk factors for CVD and early arterial wall change are associated with SDH and represent a target for clinical intervention to reduce future CVD burden in adolescents with T1D.

PMID: 27476636 [PubMed - in process]

Curr Vasc Pharmacol. 2016 Jul 22. [Epub ahead of print]

Cardiovascular Risk Factors: Does Sex Matter?

Wells GL.

Coronary heart disease (CHD) is the leading cause of death for women worldwide, most of which is believed to be preventable. Numerous risk factors for CHD are well described, and understanding these risk factors is the first step to reducing the burden of CHD. There are clear differences in risk factors between women and men. The incidence of myocardial infarction is much lower among women under the age of 50 years compared with men, but after menopause, the incidence in women dramatically increases to approach that of men. For this reason, estrogen is postulated to be cardioprotective but results of recent randomized clinical trials challenge this hypothesis. The significance of cardiovascular risk factors appears to vary between women and men, the reasons for which remain elusive but could include the interaction of these risk factors with hormones. Confounding this observation is that most early studies of cardiovascular risk factors enrolled primarily men. This review will focus solely on the differences in cardiovascular risk factors in women and men including the current role of hormone therapy in CHD prevention, sex differences in established CHD risk factors and emerging risk factors for CHD in women.

PMID: 27456107 [PubMed - as supplied by publisher]

Diabetes Care. 2016 Aug;39 Suppl 2:S205-9. doi: 10.2337/dcS15-3014.

Hypoglycemia and Cardiovascular Risk: Is There a Major Link?

Hanefeld M, Frier BM, Pistrosch F.

Severe hypoglycemia is recognized to be one of the strongest predictors of macrovascular events, adverse clinical outcomes, and mortality in patients with type 2 diabetes. However, it is uncertain whether a direct pathophysiological link exists or whether hypoglycemia is primarily a marker of vulnerability to these events. Large clinical trials have reported an increased hazard ratio for all-cause mortality and cardiovascular events in patients with type 2 diabetes and severe hypoglycemia, but such an association has not been demonstrated in prospective trials of people with type 1 diabetes. Several cardiovascular effects occur during hypoglycemia either as a result of low blood glucose levels per se or through activation of the sympathoadrenal response: hemodynamic changes with an increase in cardiac work load and potential attenuation of myocardial perfusion, electrophysiological changes that may be arrhythmogenic, induction of a prothrombotic state, and release of inflammatory markers. Although the potential for a causal relationship has been demonstrated in mechanistic studies, the evidence from large prospective studies that hypoglycemia is a major causal contributor to cardiovascular events is limited to date. Other preexisting cardiovascular risk factors in addition to hypoglycemia may be the major link to the final cardiovascular event, but a low blood glucose level can trigger these events in patients with a high cardiovascular risk.

PMID: 27440834 [PubMed - in process]

Clin Nurs Res. 2016 Jul 8. pii: 1054773816658644. [Epub ahead of print]

A Comparison of Biological and Physical Risk Factors for Cardiovascular Disease in Overweight /Obese Individuals With and Without Prediabetes.

Liu T.

Compared with type 2 diabetes, evaluating the direct biological and physical risk factors for cardiovascular disease (CVD) in overweight/obese adults with and without prediabetes is less understood. Therefore, the aim of the study was to compare baseline biological and physical risk factors for CVD among overweight/obese adults with and without prediabetes. A secondary data analysis was performed. Three hundred forty-one overweight/obese participants were included in the analysis. Compared with non-prediabetics, prediabetics had higher fasting blood glucose, body mass index, waist-to-hip ratio, and triglycerides. Prediabetics were also more likely to be insulin resistant than non-prediabetics. Participants with prediabetes had much lower cardiorespiratory fitness than those without prediabetes. Findings from this study suggest that healthy overweight/obese adults with prediabetes were likely at higher biological and physical risk of CVD at baseline compared with those without prediabetes. Early intervention to improve CVD risk progression among persons with prediabetes is essential.

PMID: 27402725 [PubMed - as supplied by publisher]

Curr Opin Lipidol. 2016 Aug;27(4):323-8.

Diet, lipids, and cardiovascular disease.

Siri-Tarino PW Krauss RM.

PURPOSE OF REVIEW: Modulation of diet is the primary lifestyle approach for reducing cardiovascular disease (CVD) risk, with a major focus of current guidelines being to lower LDL cholesterol by reducing intake of saturated fatty acids. However, dietary effects on lipid-related CVD risk factors extend beyond LDL cholesterol, with growing emphasis on the prevention and management of atherogenic dyslipidemia, which includes elevated triglyceride, small dense LDL, and reduced HDL cholesterol, and which is associated with excess adiposity and insulin resistance. We here review recent studies of dietary macronutrient effects on CVD risk that may act through effects on plasma lipid and lipoprotein metabolism.

RECENT FINDINGS: Effects of reducing saturated fatty acids on CVD risk have been evaluated both in terms of the replacement macronutrient(s) and the food and dietary context in which the macronutrients are consumed. Although weight loss remains the most important goal for reducing cardiometabolic risk among overweight and obese individuals, a variety of lines of evidence support limitation of added sugars and processed starches for improving features of atherogenic dyslipidemia.

SUMMARY: Increasing understanding of the complexity of nutrient-disease relationships has shifted the framework for CVD prevention from a focus on macronutrient content of diets to foods and dietary patterns.

PMID: 27389628 [PubMed - in process]

Curr Opin Lipidol. 2016 Aug;27(4):329-44.

Cardiovascular diseases in mega-countries: the challenges of the nutrition, physical activity and epidemiologic transitions, and the double burden of disease.

Barquera S, Pedroza-Tobias A, Medina C.

PURPOSE OF REVIEW: There are today 11 mega-countries with more than 100 million inhabitants. Together these countries represent more than 60% of the world's population. All are facing noncommunicable chronic disease (NCD) epidemic where high cholesterol, obesity, diabetes, and cardiovascular diseases are becoming the main public health concerns. Most of these countries are facing the double burden of malnutrition where undernutrition and obesity coexist, increasing the complexity for policy design and implementation. The purpose of this study is to describe diverse sociodemographic characteristics of these countries and the challenges for prevention and control in the context of the nutrition transition.
RECENT FINDINGS: Mega-countries are mostly low or middle-income and are facing important epidemiologic, nutrition, and physical activity transitions because of changes in food systems and unhealthy lifestyles. NCDs are responsible of two-thirds of the 57 million global deaths annually. Approximately, 80% of these are in low and middle-income countries. Only developed countries have been able to reduce mortality rates attributable to recognized risk factors for NCDs, in particular high cholesterol and blood pressure.
SUMMARY: Mega-countries share common characteristics such as complex bureaucracies, internal ethnic, cultural and socioeconomic heterogeneity, and complexities to implement effective health promotion and education policies across population. Priorities for action must be identified and successful lessons and experiences should be carefully analyzed and replicated.

PMCID: PMC4947537
PMID: 27389629 [PubMed - in process]

Climacteric. 2016 Aug;19(4):329-36.

Cardiovascular risk assessment in women - an update.

Collins P, Webb CM, de Villiers TJ, Stevenson JC, Panay N, Baber RJ.

Cardiovascular disease is the leading cause of morbidity and mortality in postmenopausal women. Although it is a disease of aging, vascular disease initiates much earlier in life. Thus, there is a need to be aware of the potential to prevent the development of the disease from an early age and continue this surveillance throughout life. The menopausal period and early menopause present an ideal opportunity to assess cardiovascular risk and plan accordingly. Generally in this period, women will be seen by primary health-care professionals and non-cardiovascular specialists. This review addresses female-specific risk factors that may contribute to the potential development of cardiovascular disease. It is important for all health-care professionals dealing with women in midlife and beyond to be cognisant of these risk factors and to initiate female-specific preventative measures or to refer to a cardiovascular specialist.

PMID: 27327421 [PubMed - in process]

Diab Vasc Dis Res. 2016 Jul;13(4):250-9.

Risk stratification for 25-year cardiovascular disease incidence in type 1 diabetes: Tree - structured survival analysis of the Pittsburgh Epidemiology of Diabetes Complications study.

Miller RG, Anderson SJ, Costacou T, Sekikawa A, Orchard TJ.

BACKGROUND: The formal identification of subgroups with varying levels of risk is uncommon in observational studies of cardiovascular disease, although such insight might be useful for clinical management.
METHODS: Tree-structured survival analysis was utilized to determine whether there are meaningful subgroups at varying levels of cardiovascular disease risk in the Pittsburgh Epidemiology of Diabetes Complications study, a prospective cohort study of childhood-onset (<17 years old) type 1 diabetes.
RESULTS: Of the 561 participants free of cardiovascular disease (coronary artery disease, stroke or lower extremity arterial disease) at baseline, 263 (46.9%) had an incident cardiovascular disease event over the 25-year follow-up. Tree-structured survival analysis revealed a range of risk groups, from 24% to 85%, which demonstrate that those with short diabetes duration and elevated non-high-density lipoprotein cholesterol have similar cardiovascular disease risk to those with long diabetes duration and that renal disease is a better discriminator of risk in men than in women.
CONCLUSION: Our findings suggest that subgroups with major cardiovascular disease risk differences exist in this type 1 diabetes cohort. Using tree-structured survival analysis may help to identify these groups and the interrelationships between their associated risk factors. This approach may improve our understanding of various clinical pathways to cardiovascular disease and help target intervention strategies.

PMID: 27190081 [PubMed - in process]

Ann Med. 2016 Sep;48(6):403-409. Epub 2016 May 17.

Health 2000 score - development and validation of a novel cardiovascular risk score.

Johansson JK, Puukka PJ Niiranen TJ, Varis J Peltonen M, Salomaa V, Jula AM.

BACKGROUND: Previous risk scores for predicting myocardial infarctions and strokes have mainly been based on conventional risk factors. We aimed to develop a novel improved risk score that would incorporate other widely available clinical variables for predicting the broadest range of endpoints, including revascularizations.
METHODS: A nationwide sample of 5843 Finns underwent a clinical examination in 2000-2001. The participants were followed for a median of 11.2 years for incident cardiovascular events. Model discrimination and calibration were assessed and internal validation was performed.
RESULTS: Sex, age, systolic blood pressure, total cholesterol, HDL cholesterol, smoking status, parental death from cardiovascular disease, left ventricular hypertrophy, hemoglobin A1c, and educational level remained significant predictors of cardiovascular events ($p \leq 0.005$ for all). The share of participants with ≥10% estimated cardiovascular risk was 28.9%, 18.5%, 36.9% and 23.8% with the Health 2000, Finrisk, Framingham and Reynolds risk scores. The Health 2000 score (c-statistic: 0.850) showed superior discrimination to the Framingham (c-statistic improvement: 0.021) and Reynolds (c-statistic improvement: 0.007) scores ($p < 0.001$ for both comparisons). Model including left ventricular hypertrophy, hemoglobin A1c, and educational level improved the model prediction (c-statistic improvement: 0.006, $p = 0.003$).
CONCLUSIONS: The Health 2000score improves cardiovascular risk prediction in the current study population. KEY MESSAGES Previous risk scores for predicting myocardial infarctions and strokes have mainly been based on conventional risk factors. We aimed to develop a novel improved risk score that would incorporate other widely available clinical variables (including left ventricular hypertrophy, hemoglobin A1c, and education level) for predicting the broadest range of endpoints, including revascularizations. The Health 2000 score improved cardiovascular risk prediction in the current study population compared with traditional cardiovascular risk prediction scores.

PMID: 27187608 [PubMed - in process]

Prev Med. 2016 Jul;88:189-95.

A metabolic syndrome severity score: A tool to quantify cardio-metabolic risk factors.

Wiley JF, Carrington MJ.

Metabolic syndrome is a cluster of cardio-metabolic risk factors and is associated with increased mortality. There is no standard, validated way to assess the severity of aggregated metabolic syndrome risk factors. Cardiovascular and diabetes risk factor data came from two studies conducted in Australia from 2006 to 2010 in adults aged 18 or above. In medication free adults, sex-specific clinical thresholds and Principal Component Analysis were used to develop a formula to calculate a metabolic syndrome severity score (MetSSS). These scores were compared to scores derived using the same process in subgroups by sex, age, medication status, and time. We also examined the MetSSS in relation to other known risk factors. In 2125 adults (57.6±14.7years of age), the MetSSS ranged from 0 to 8.7 with a mean of 2.6. There were strong correlations (.95-.99) between the MetSSS in medication free adults and the MetSSS calculated from subgroups. MetSSS predicted medication initiation for hypertension, hyperlipidemia and hyperglycemia over six months (OR=1.31, 95% CI [1.00-1.70], per MetSSS unit, p=.043). Lower education, medication prescription, history of smoking and age were associated with higher MetSSS (all p<.05). Higher physical but not mental health quality of life was associated with lower MetSSS (p<.001). A standardized formula to measure cardio-metabolic risk factor severity was constructed and demonstrated expected relations with known risk factors. The use of the MetSSS is recommended as a measure of change within individuals in cardio-metabolic risk factors and to guide treatment and management.

PMID: 27095322 [PubMed - in process]

Heart. 2016 Jul 1;102(13):1009-16.

Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies.

Valtorta NK, Kanaan M, Gilbody S, Ronzi S, Hanratty B.

BACKGROUND: The influence of social relationships on morbidity is widely accepted, but the size of the risk to cardiovascular health is unclear.
OBJECTIVE: We undertook a systematic review and meta-analysis to investigate the association between loneliness or social isolation and incident coronary heart disease (CHD) and stroke.
METHODS: Sixteen electronic databases were systematically searched for longitudinal studies set in high-income countries and published up until May 2015. Two independent reviewers screened studies for inclusion and extracted data. We assessed quality using a component approach and pooled data for analysis using random effects models.
RESULTS: Of the 35 925 records retrieved, 23 papers met inclusion criteria for the narrative review. They reported data from 16 longitudinal datasets, for a total of 4628 CHD and 3002 stroke events recorded over follow-up periods ranging from 3 to 21 years. Reports of 11 CHD studies and 8 stroke studies provided data suitable for meta-analysis. Poor social relationships were associated with a 29% increase in risk of incident CHD (pooled relative risk: 1.29, 95% CI 1.04 to 1.59) and a 32% increase in risk of stroke (pooled relative risk: 1.32, 95% CI 1.04 to 1.68). Subgroup analyses did not identify any differences by gender. CONCLUSIONS: Our findings suggest that deficiencies in social relationships are associated with an increased risk of developing CHD and stroke. Future studies are needed to investigate whether interventions targeting loneliness and social isolation can help to prevent two of the leading causes of death and disability in high-income countries.

STUDY REGISTRATION NUMBER: CRD42014010225.

PMCID: PMC4941172
PMID: 27091846 [PubMed - in process]