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OUTCOMES CARDIOVASCULARES

Risco Cardiovascular

Pesquisa Bibliográfica efectuada em Pubmed (www.ncbi.nlm.nih.gov/ - Abr a Jun 2018

Prev Med Rep. 2018 May 15;11:31-36.

Association of activity behaviours and patterns with cardiovascular risk factors in Swiss middle-aged adults: The CoLaus study.

Gubelmann C, Antiochos P, Vollenweider P, Marques-Vidal P.

The impact of the combination between physical activity (PA) and sedentary (SE) levels on cardiovascular health is poorly known. We assessed the association of activity behaviours and patterns with cardiovascular risk factors in the general population (The CoLaus study, Switzerland, 2014-2017). 2605 adults (54.4% women, age range 45-86 years) had PA and SE levels measured for 14 days using wrist-worn accelerometry. Four activity behaviours: "Couch potato": low PA & high SE; "Light mover": low PA & low SE; "Sedentary exerciser": high PA & high SE, and "Busy bee": high PA & low SE; and three activity patterns: "Inactive", "Weekend warrior", and "Regularly active" were defined. Smoking, obesity, hypertension, dyslipidemia and diabetes were assessed. Relative to 'Couch potatoes', 'Sedentary exercisers' and 'Busy bees' had a lower likelihood of smoking: Odds Ratio (95% confidence interval): 0.40 (0.27-0.61) and 0.62 (0.47-0.81), obesity: 0.43 (0.29-0.63) and 0.41 (0.31-0.54), and diabetes: 0.53 (0.30-0.95) and 0.62 (0.42-0.89), respectively. Relative to 'Inactives', 'Weekend warriors' and 'Regularly actives' had a lower likelihood of smoking: 0.58 (0.43-0.78) and 0.56 (0.44-0.72), obesity: 0.41 (0.30-0.56) and 0.41 (0.32-0.53), hypertension: 0.66 (0.51-0.85) and 0.72 (0.59-0.89), and diabetes: 0.61 (0.38-0.98) and 0.60 (0.42-0.86), respectively. High PA is associated with a favourable cardiovascular risk profile, even when concomitant with high SE or when PA is concentrated on weekends. These findings suggest that being "Sedentary exerciser" or "Weekend warrior" might be sufficient to prevent cardiovascular disease.

PMCID: PMC6030388
PMID: 29984135

Am J Cardiol. 2018 May 16. pii: S0002-9149(18)31118-4.

Relation of Subclinical Hypothyroidism is Associated With Cardiovascular Events and All-Cause Mortality in Adults With High Cardiovascular Risk.

Moon S, Kong SH, Choi HS, Hwangbo Y, Lee MK, Moon JH, Jang HC, Cho NH, Park YJ.

The aim of this study was to determine the association between subclinical hypothyroidism and cardiovascular (CVD) events, and mortality using the atherosclerotic CVD risk score. We carried out an observational study in a prospective cohort that was followed up for 12years. The study included 3,021 participants aged ≥ 40years at baseline from the Ansung cohort, part of the Korean Genome and Epidemiology Study. Cox regression models were constructed to evaluate the hazards ratio (HR) and 95% confidence interval (CI) for all-cause mortality and CVD events in groups classified according to thyroid status. Subgroup analysis was performed with a cut-off age of 65years or 7.5% of the 10-year atherosclerotic CVD risk score. The subclinical hypothyroidism group in the highest quartile of thyroid-stimulating hormone (>6.57 mIU/L) had a significantly increased risk of all-cause mortality (HR 2.12, 95% CI 1.27 to 3.56) and CVD events (HR 1.92, 95% CI 1.21 to 3.04) compared with euthyroid participants. Subgroup analysis by CVD risk revealed that participants with high CVD risk only had a high risk of all-cause mortality (HR 2.18, 95% CI 1.22 to 3.87) and CVD events (HR 2.42, 95% CI 1.35 to 4.33). Further analysis showed that participants aged <65years with high CVD risk had the highest risk of all-cause mortality (HR 3.50, 95% CI 1.50 to 8.16) and CVD events (HR 3.37, 95% CI 1.46 to 9.57). Our results demonstrated that high thyroid-stimulating hormone levels were associated with a greater risk of mortality and new CVD risks, particularly among subjects with high CVD risk.

PMID: 29980273

Prog Cardiovasc Dis. 2018 Jun 28. pii: S0033-0620(18)30122-1.

Overview of Epidemiology and Contribution of Obesity and Body Fat Distribution to Cardiovascular Disease: An Update.

Piché ME, Poirier P, Lemieux I, Després JP.

Obesity is recognized as a heterogeneous condition in which individuals with similar body mass index may have distinct metabolic and cardiovascular risk profiles. Susceptibility to obesity-related cardiometabolic complications is not solely mediated by overall body fat mass, but is largely dependent upon individual differences in regional body fat distribution and ability of subcutaneous adipose tissue to expand. The present review will discuss to what extent the individual variation in body fat distribution is one of the clinical key variables explaining the metabolic heterogeneity of obesity and its related cardiovascular risk. We will present the evidence for the complex nature of the relationship between obesity and cardiovascular disease, outline our current understanding of the mechanisms involved, and identify future direction of research pertinent to this interaction.

PMID: 29964067

High Blood Press Cardiovasc Prev. 2018 Jun 29.

Prevalence and Comorbidities of Resistant Hypertension: A Collaborative Population-Based Observational Study.

Romano S, Idolazzi C, Fava C, Fondrieschi L, Celebrano M, Delva P, Branz L, Donato A, Dalbeni A, Minuz P.

BACKGROUND: Resistant hypertension, is a clinical condition that may confer high cardiovascular risk. Aim of the observational study was to evaluate the prevalence of resistant hypertension, and the association with cardiovascular risk factors or diseases in the Verona urban area.
DESIGN AND METHODS: Eleven family doctors retrieved anonymised data concerning blood pressure, diagnosis of hypertension and treatments from a population of 17,502 adult subjects. The prevalence of resistant hypertension was estimated considering patients who had been consecutively treated with at least four antihypertensive medications, regardless of blood pressure values. Further search concerning the clinical characteristics associated with resistant hypertension was performed in a random subsample of 55 patients.
RESULTS: The prevalence of hypertension was 21.9%, that of resistant hypertension was 2.1%, approximately 10% of the whole hypertensive population. High prevalence of diabetes mellitus (53%) and hyperlipidemia (83%) was found in association with resistant hypertension. As for end organ damage, high prevalence of carotid artery stenosis (45%), ischemic heart disease (43%) and left ventricular hypertrophy (40%) was observed in patients with resistant hypertension. Blood pressure was higher than 140/90 mmHg in 58% of patients in spite of treatment with four or more different antihypertensive drugs. The average age, systolic and pulse pressure were significantly higher in the subgroup of patients with resistant hypertension.
CONCLUSIONS: Patients with resistant hypertension are characterised by a higher systolic and pulse pressure and a very high attributable cardiovascular risk, due to high prevalence of cardiovascular risk factors and overt organ damage and cardiovascular disease.

PMID: 29959696

J Eur Acad Dermatol Venereol. 2018 Jun 28.

Psoriasis, metabolic syndrome and cardiovascular risk factors. A population-based study.

Fernández-Armenteros JM, Gómez-Arbonés X, Buti-Soler M, Betriu-Bars A, Sanmartin-Novell V, Ortega-Bravo M, Martínez-Alonso M, Garí E, Portero-Otín M, Santamaria-Babi L, Casanova-Seuma JM.

BACKGROUND: Psoriasis is a very prevalent systemic chronic inflammatory disease. Major cardiovascular events are the main cause of mortality in these patients which suggests an association between psoriasis and traditional cardiovascular risk factors.
OBJECTIVE: Identify classic cardiovascular risk factors and metabolic syndrome (MS) in patients with psoriasis, their possible association with its severity and compare it with the non-psoriatic population.
METHODS: This is an observational and cross-sectional population study in Lleida (Spain) from a joint hospital / primary care database.
RESULTS: The database comprised 398,701 individuals. There were 6,868 cases registered as psoriasis (1.7%), and 499 of them (7.3%) were classified as moderate-severe psoriasis. Patients with psoriasis had a higher prevalence of traditional cardiovascular risk factors than non-psoriatic population: diabetes mellitus 2 (13.9% vs 7.4%, OR 2.01), dyslipidemia (28.8% vs 17.4%, OR 1.92), arterial hypertension (31.2% vs 19.0%, OR 1.93), obesity (33.7% vs 28.1%, OR 1.30), altered fasting basal glycaemia (21.4% vs 15.1%, OR 1.54), low cholesterol-HDL (38.1% vs 32.3%, OR 1.29), hypertriglyceridemia (45.7% vs 35.2%, OR 1.55) and high waist circumference (75.7% vs 72.3%, OR 1.19). MS was more prevalent in psoriatic patients (28.3% vs 15.1%, OR 2.21) and cardiovascular risk factors were similar between psoriasis severity groups. Psoriatic patients had a higher prevalence of ischemic heart disease (3.3% vs 1.8%, OR 1.87) and vascular-cerebral accidents (1.8% vs 1.2%, OR 1.55). A model for MS showed a significant non-linear relationship with age and sex, and significant differences between patients with and without psoriasis.
CONCLUSION: We found statistically differences in relation to the prevalence of cardiovascular risk factors, MS and major cardiovascular events in psoriatic patients. However, differences were not seen between psoriasis severity groups. Our work reinforces the need for a multidisciplinary approach and close monitoring of cardiovascular risk factors in these patients to prevent a cardiovascular event.

PMID: 29953676

Front Cardiovasc Med. 2018 Jun 7;5:57.

Scientific Contributions of Population-Based Studies to Cardiovascular Epidemiology in the GWAS Era.

Lieb W, Vasan RS.

Longitudinal, well phenotyped, population-based cohort studies offer unique research opportunities in the context of genome-wide association studies (GWAS), including GWAS for new-onset (incident) cardiovascular disease (CVD) events, the assessment of gene x lifestyle interactions, and evaluating the incremental predictive utility of genetic information in apparently healthy individuals. Furthermore, comprehensively phenotyped community-dwelling samples have contributed to GWAS of numerous traits that reflect normal organ function (e.g., cardiac structure and systolic and diastolic function) and for many traits along the CVD continuum (e.g., risk factors, circulating biomarkers, and subclinical disease traits). These GWAS have heretofore identified many genetic loci implicated in normal organ function and different stages of the CVD continuum. Finally, population-based cohort studies have made important contributions to Mendelian Randomization analyses, a statistical approach that uses genetic information to assess observed associations between cardiovascular traits and clinical CVD outcomes for potential causality.

PMCID: PMC6001813
PMID: 29930944

J Intern Med. 2018 Jun 20. [Epub ahead of print]

Cardiovascular disease in diabetes type 2 - current concepts.

Rosengren A.

Type 2 diabetes is a major and accelerating public health challenge. Between 1980 and 2014, a period of just 35 years, the number of adults with diabetes globally is estimated to have increased from 108 million to 422 million, due not only to sharply rising obesity rates, but also to increasing population size, and longer life expectancy. The increase in numbers is due to an increasing prevalence of diabetes worldwide, increasing population size, and longer life expectancy.

Overall, worldwide age-standardized adult diabetes prevalence doubled from 4.3% to 9.0% in men and from 5.0% to 7.9% in women. The largest increases in diabetes type 2 have been demonstrated in low- and middle-income countries, while rises in high-income countries have been less marked, or even flat. Diabetes type 2 rates in low- and middle-income countries now in many instances surpass those in high-income countries, in response to changes in lifestyle. One factor of particular concern are the large relative increases in type 2 diabetes among young individuals observed in many countries, their higher overall risk factor burden, long exposure to hyperglycemia, and greater risk of complications over the life course. Type 2 diabetes is increasingly found to be a heterogeneous condition, where risk of cardiovascular disease that traditionally has been estimated at 2 to 4 times that of the non-diabetic population, varies substantially with diabetes phenotype and accordingly diabetes does not confer the same increase in relative or absolute risk in all people. New research shows that excess risk varies substantially with type of outcome, age, glycemic control, presence of renal complications, and other factors. Heart failure, previously less recognized that other cardiovascular conditions, is increasingly coming into focus, because of strong links with poor glycemic control and obesity. The knowledge about risk of cardiovascular disease in diabetes is almost entirely derived from high-income countries, whereas there is comparatively very little data from low- and middle income countries, where the majority of persons with type 2 diabetes live, and where management in many cases is far from optimal. The reductions in cardiovascular disease incidence and mortality now observed in high-income countries are encouraging, because this reinforces the fact that improvement is possible and that a near-normal, or even normal life-expectancy can be achieved in subtypes of type 2 diabetes.

PMID: 29923339

Nefrologia. 2018 Jun 18. pii: S0211-6995(18)30075-4.

Chronic kidney disease in Spain: Prevalence and impact of accumulation of cardiovascular risk factors.

[Article in English, Spanish]

Gorostidi M, Sánchez-Martínez M, Ruilope LM, Graciani A, de la Cruz JJ, Santamaría R, Del Pino MD, Guallar-Castillón P, de Álvaro F, Rodríguez-Artalejo F, Banegas JR.

BACKGROUND: Chronic kidney disease (CKD) is a public health problem worldwide. We aimed to estimate the CKD prevalence in Spain and to examine the impact of the accumulation of cardiovascular risk factors (CVRF).
MATERIAL AND METHODS: We performed a nationwide, population-based survey evaluating 11,505 individuals representative of the Spanish adult population. Information was collected through standardised questionnaires, physical examination, and analysis of blood and urine samples in a central laboratory. CKD was graded according to current KDIGO definitions. The relationship between CKD and 10CVRF was assessed (age, hypertension, general obesity, abdominal obesity, smoking, high LDL-cholesterol, low HDL-cholesterol, hypertriglyceridaemia, diabetes and sedentary lifestyle).
RESULTS: Prevalence of CKD was 15.1% (95%CI: 14.3-16.0%). CKD was more common in men (23.1% vs 7.3% in women), increased with age (4.8% in 18-44 age group, 17.4% in 45-64 age group, and 37.3% in ≥65), and was more common in those with than those without cardiovascular disease (39.8% vs 14.6%); all P<.001. CKD affected 4.5% of subjects with 0-1CVRF, and then progressively increased from 10.4% to 52.3% in subjects with 2 to 8-10CVRF (P trend <.001).
CONCLUSIONS: CKD affects one in seven adults in Spain. The prevalence is higher than previously reported and similar to that in the United States. CKD was particularly prevalent in men, older people and people with cardiovascular disease. Prevalence of CKD increased considerably with the accumulation of CVRF, suggesting that CKD could be considered as a cardiovascular condition.

PMID: 29914761

Circ Res. 2018 Jun 8;122(12):1741-1764.

Sleep Apnea and Cardiovascular Disease: An Enigmatic Risk Factor.

Floras JS.

Synchronization of molecular, metabolic, and cardiovascular circadian oscillations is fundamental to human health. Sleep-disordered breathing, which disrupts such temporal congruence, elicits hemodynamic, autonomic, chemical, and inflammatory disturbances with acute and long-term consequences for heart, brain, and circulatory and metabolic function. Sleep apnea afflicts a substantial proportion of adult men and women but is more prevalent in those with established cardiovascular diseases and especially fluid-retaining states. Despite the experimental, epidemiological, observational, and interventional evidence assembled in support of these concepts, this substantial body of work has had relatively modest pragmatic impact, thus far, on the discipline of cardiology.

Contemporary estimates of cardiovascular risk still are derived typically from data acquired during wakefulness. The impact of sleep-related breathing disorders rarely is entered into such calculations or integrated into diagnostic disease-specific algorithms or therapeutic recommendations. Reasons for this include absence of apnea-related symptoms in most with cardiovascular disease, impediments to efficient diagnosis at the population level, debate as to target, suboptimal therapies, difficulties mounting large randomized trials of sleep-specific interventions, and the challenging results of those few prospective cardiovascular outcome trials that have been completed and reported.

The objectives of this review are to delineate the bidirectional interrelationship between sleep-disordered breathing and cardiovascular disease, consider the findings and implications of observational and randomized trials of treatment, frame the current state of clinical equipoise, identify principal current controversies and potential paths to their resolution, and anticipate future directions.

PMID: 29880501

Immunol Invest. 2018 Jun 6:1-11.

Interleukin-6 as a Predictor of the Risk of Cardiovascular Disease: A Meta-Analysis of Prospective Epidemiological Studies.

Zhang B, Li XL, Zhao CR, Pan CL, Zhang Z.

OBJECTIVE: The etiology of cardiovascular disease (CVD) is complex owing to the interactions of genetic variance with environmental factors. Inflammatory processes are now being increasingly implicated in the pathogenesis of CVD. This meta-analysis investigated the potential role of interleukin-6 (IL-6) as a risk factor for CVD development in healthy individuals.
METHODS: Literature search was carried out in multiple electronic databases, and study selection followed a priori eligibility criteria. Meta-analyses of standardized mean differences were carried out to determine an overall effect size of the difference in IL-6 levels between CVD cases and non-CVD matched controls. Meta-regression analyses were performed to examine the relationship between the IL-6 levels in CVD cases and several explanatory variables.
RESULTS: Seventeen studies enrolling 288738 healthy individuals with an average follow-up duration of 7.4 ± 4.1 years were found eligible. Overall, data of 5400 CVD cases and 14607 matched non-CVD controls are used in the present meta-analysis. Baseline IL-6 levels were significantly higher in CVD cases than in non-CVD controls (standardized mean difference [95% confidence interval]) of 0.14 [0.09, 0.20]/mean difference of 0.36 [0.28, 0.44] picogram per milliliter). Total cholesterol, LDL-cholesterol, and triglyceride levels were also significantly higher, and HDL-cholesterol levels were significantly lower in CVD cases in comparison with the controls. Systolic blood pressure and total cholesterol levels had a significantly positive relationship, whereas triglyceride levels had a significantly inverse relationship with the levels of IL-6.
CONCLUSION: Higher IL-6 levels in healthy individuals are associated with CVD risk, which is co-associated with hypertension and hypercholesterolemia.

PMID: 29873573

Cardiovasc Diabetol. 2018 Jun 2;17(1):77.

Burden of cardiovascular risk factors and disease among patients with type 1 diabetes: results of the Australian National Diabetes Audit (ANDA).

Pease A, Earnest A, Ranasinha S, Nanayakkara N, Liew D, Wischer N, Andrikopoulos S, Zoungas S.

BACKGROUND: Cardiovascular risk stratification is complex in type 1 diabetes.We hypothesised that traditional and diabetes-specific cardiovascular risk factors were prevalent and strongly associated with cardiovascular disease (CVD) among adults with type 1 diabetes attending Australian diabetes centres.

METHODS: De-identified, prospectively collected data from patients with type 1 diabetes aged ≥ 18 years in the 2015 Australian National Diabetes Audit were analysed. The burden of cardiovascular risk factors [age, sex, diabetes duration, glycated haemoglobin (HbA1c), blood pressure, lipid profile, body mass index, smoking status, retinopathy, renal function and albuminuria] and associations with CVD inclusive of stroke, myocardial infarction, coronary artery bypass graft surgery/angioplasty and peripheral vascular disease were assessed. Restricted cubic splines assessed for non-linearity of diabetes duration and likelihood ratio test assessed for interactions between age, diabetes duration, centre type and cardiovascular outcomes of interest. Discriminatory ability of multivariable models were assessed with area under the receiver operating characteristic (ROC) curves.

RESULTS: Data from 1169 patients were analysed. Mean (± SD) age and median diabetes duration was 40.0 (± 16.7) and 16.0 (8.0-27.0) years respectively. Cardiovascular risk factors were prevalent including hypertension (21.9%), dyslipidaemia (89.4%), overweight/obesity (56.4%), ever smoking (38.5%), albuminuria (31.1%), estimated glomerular filtration rate < 60 mL/min/1.73 m2 (10.3%) and HbA1c > 7.0% (53 mmol/mol) (81.0%). Older age, longer diabetes duration, smoking and antihypertensive therapy use were positively associated with CVD, while high density lipoprotein-cholesterol and diastolic blood pressure were negatively associated ($p < 0.05$). Association with CVD and diabetes duration remained constant until 20 years when a linear increase was noted. Longer diabetes duration also had the highest population attributable risk of 6.5% (95% CI 1.4, 11.6). Further, the models for CVD demonstrated good discriminatory ability (area under the ROC curve 0.88; 95% CI 0.84, 0.92).

CONCLUSIONS: Cardiovascular risk factors were prevalent and strongly associated with CVD among adults with type 1 diabetes attending Australian diabetes centres. Given the approximate J-shaped association between type 1 diabetes duration and CVD, the impact of cardiovascular risk stratification and management before and after 20 years duration needs to be further assessed longitudinally. Diabetes specific cardiovascular risk stratification tools incorporating diabetes duration should be an important consideration in future guideline development.

PMID: 29859534

Curr Atheroscler Rep. 2018 Jun 2;20(8):40.

Peripheral Arterial Disease in Women: an Overview of Risk Factor Profile, Clinical Features, and Outcomes.

Jelani QU, Petrov M, Martinez SC, Holmvang L, Al-Shaibi K, Alasnag M.

PURPOSE OF REVIEW: Peripheral arterial disease (PAD) is the third most common manifestation of cardiovascular disease (CVD), following coronary artery disease (CAD) and stroke. PAD remains underdiagnosed and under-treated in women.
RECENT FINDINGS: Women with PAD experience more atypical symptoms and poorer overall health status. The prevalence of PAD in women increases with age, such that more women than men have PAD after the age of 40 years. There is under-representation of PAD patients in clinical trials in general and women in particular. In this article, we address the lack of women participants in PAD trials. We then present a comprehensive overview of the epidemiology/risk factor profile, clinical features, treatment, and outcomes. PAD is prevalent in women and its global burden is on the rise despite a decline in global age-standardized death rate from CVD. The importance of this issue has been underlined by the American Heart Association's (AHA) "Call to Action" scientific statement on PAD in women. Large-scale campaigns are needed to increase awareness among physicians and the general public. Furthermore, effective treatment strategies must be implemented.

PMCID: PMC5984648
PMID: 29858704

Br J Sports Med. 2018 Jun;52(12):761-768.

Self-rated walking pace and all-cause, cardiovascular disease and cancer mortality: individual participant pooled analysis of 50 225 walkers from 11 population British cohorts.

Stamatakis E, Kelly P, Strain T, Murtagh EM, Ding D, Murphy MH.

BACKGROUND/OBJECTIVES: Walking pace is associated with risk of premature mortality. However, whether this relationship is independent of total volume of physical activity and highest physical activity intensity remains unclear. We examined the associations between walking pace and cause-specific mortality, investigating the potential modifying effect of factors such as total physical activity volume, highest physical activity intensity, age, sex and body mass index (BMI).

METHODS: Prospective pooled analysis of 11 population-based baseline surveys in England and Scotland between 1994 and2008 that were linked with mortality records. Multivariate-adjusted Cox proportional hazards models examined associations between walking pace (slow, average, brisk/fast) and all-cause, cancer and cardiovascular disease (CVD) mortality.

RESULTS: 50 225 walkers were entered in the core analyses. Among participants who did not experience an event in the first 2 years of follow-up (n=49 731), walking at an average or brisk/fast pace was associated with a reduced risk of all-cause (20% (95% CI 12% to 28%) and 24% (95% CI 13% to 33%), respectively) and CVD mortality (24% (95% CI 9% to 36%) and 21% (95% CI 1% to 38%), respectively), compared with reporting walking at a slow pace. In stratified analyses, such associations were evident among those over 50 years, those not meeting the physical activity recommendations and those who did not undertake vigorous-intensity activity. There were no interactions by sex or BMI. No associations were seen between pace and cancer mortality.

CONCLUSION: Walking benefits health. Assuming causality, these analyses suggest that increasing walking pace could reduce risk for all-cause and CVD mortality. Walking pace could be emphasised in public health messages, especially in situations when increase in walking volume or frequency is less feasible.

PMID: 29858463

Clin Chim Acta. 2018 May 24;484:150-163.

Uric acid and cardiovascular disease.

Ndrepepa G.

Uric acid (UA) is an end product of purine metabolism in humans and great apes. UA acts as an antioxidant and it accounts for 50% of the total antioxidant capacity of biological fluids in humans. When present in cytoplasm of the cells or in acidic/hydrophobic milieu in atherosclerotic plaques, UA converts into a pro-oxidant agent and promotes oxidative stress and through this mechanism participates in the pathophysiology of human disease including cardiovascular disease (CVD). Most epidemiological studies but not all of them suggested the existence of an association between elevated serum UA level and CVD, including coronary heart disease (CHD), stroke, congestive heart failure, arterial hypertension and atrial fibrillation as well as an increased risk for mortality due to CVD in general population and subjects with confirmed CHD. Evidence available also suggests an association between elevated UA and traditional cardiovascular risk factors, metabolic syndrome, insulin resistance, obesity, non-alcoholic fatty liver disease and chronic kidney disease. Experimental and clinical studies have evidenced several mechanisms through which elevated UA level exerts deleterious effects on cardiovascular health including increased oxidative stress, reduced availability of nitric oxide and endothelial dysfunction, promotion of local and systemic inflammation, vasoconstriction and proliferation of vascular smooth muscle cells, insulin resistance and metabolic dysregulation. Although the causality in the relationship between UA and CVD remains unproven, UA may be pathogenic and participate in the pathophysiology of CVD by serving as a bridging mechanism mediating (enabling) or potentiating the deleterious effects of cardiovascular risk factors on vascular tissue and myocardium.

PMID: 29803897

Heart. 2018 May 21. pii: heartjnl-2017-312699.

Using alternatives to the car and risk of all-cause, cardiovascular and cancer mortality.

Panter J, Mytton O, Sharp S, Brage S, Cummins S, Laverty AA, Wijndaele K, Ogilvie D.

OBJECTIVE: To investigate the associations between using alternatives to the car which are more active for commuting and non-commuting purposes, and morbidity and mortality.
METHODS: We conducted a prospective study using data from 358 799 participants, aged 37-73 years, from UK Biobank. Commute and non-commute travel were assessed at baseline in 2006-2010. We classified participants according to whether they relied exclusively on the car or used alternative modes of transport that were more active at least some of the time. The main outcome measures were incident cardiovascular disease (CVD) and cancer, and CVD, cancer and all-cause mortality. We excluded events in the first 2 years and conducted analyses separately for those who regularly commuted and those who did not.
RESULTS: In maximally adjusted models, regular commuters with more active patterns of travel on the commute had a lower risk of incident (HR 0.89, 95% CI 0.79 to 1.00) and fatal (HR 0.70, 95% CI 0.51 to 0.95) CVD. Those regular commuters who also had more active patterns of non-commute travel had an even lower risk of fatal CVD (HR 0.57, 95% CI 0.39 to 0.85). Among those who were not regular commuters, more active patterns of travel were associated with a lower risk of all-cause mortality (HR 0.92, 95% CI 0.86 to 0.99).
CONCLUSIONS: More active patterns of travel were associated with a reduced risk of incident and fatal CVD and all-cause mortality in adults. This is an important message for clinicians advising people about how to be physically active and reduce their risk of disease.

PMID: 29785956

Diabetes Metab Syndr. 2018 May 16. pii: S1871-4021(18)30118-8.

Cardiovascular risk factors: Is the metabolic syndrome related to aging? Epidemiology in a Portuguese population.

Ribeiro AS, Seixas R, Gálvez JM, Climent V.

AIMS: The primary objective of our study is to determine the prevalence of the metabolic syndrome in the population. The secondary objective is to determine the prevalence of cardiovascular risk factors, anthropometric alterations and the prevalence of target organ damage and their relationship with aging.
MATERIAL AND METHODS: The sample for the study was obtained by means of a consecutive population-based demonstration in 803 adults over 18 years of age belonging to the labor force of the company Grupo Delta SA. The study was carried out according to the guidelines of the Declaration of Helsinki. The individuals included in the study voluntarily participated, once informed of the purpose of the study, giving their prior verbal consent, to the company's human resources department, in the case of Delta Group workers.
RESULTS: 23.8% of the population has metabolic syndrome more prevalent in males, no smoking, no significant alcohol consumption, sedentary, with a high Body mass index (BMI). Its prevalence increases with age.
CONCLUSION: We found that the prevalence of metabolic syndrome increases with age and is present in people of working age, increasing the risk of cardiovascular diseases, work-related absences, and socio-economic costs.

PMID: 29778667

Eur J Intern Med. 2018 May 16. pii: S0953-6205(18)30193-6.

Increased burden of comorbidities and risk of cardiovascular death in atrial fibrillation patients in Europe over ten years: A comparison between EORP-AF pilot and EHS-AF registries.

Proietti M, Laroche C, Nieuwlaat R, Crijns HJGM, Maggioni AP, Lane DA, Boriani G, Lip GYH; EORP-AF General Pilot Registry; Euro Heart Survey on AF Investigators.

BACKGROUND: In 2002, the European Society of Cardiology conducted the Euro Heart Survey (EHS), while in 2014concluded 1-year follow-up of the EURObservational Research Programme AF (EORP-AF) Pilot Registry.
METHODS: We analysed differences in clinical profiles, therapeutic approaches and outcomes between these two cohorts after propensity score matching (PSM).
RESULTS: After PSM, 5206 patients were analysed. In EORP-AF there were more elderly patients than EHS ($p < .001$). EORP-AF patients were more burdened with cardiovascular (CV) and non-CV comorbidities, with a higher proportion of patients with high thromboembolic risk. EORP-AF patients used more oral-anticoagulant (OAC) ($p < .001$). At 1-year follow-up EORP-AF patients had lower risk for thromboembolic and CV events, readmission for AF and other CV reasons (all $p < .001$), showing conversely a higher risk for CV death ($p = .015$). Kaplan-Meier curves showed that EORP-AF patients had higher risk for CV death ($p < .0001$) and all-cause death ($p = .0019$). Cox regression confirmed that EORP-AF patients were at higher risk for CV death ($p = .021$).
CONCLUSIONS: We found significant changes in AF epidemiology over a decade in Europe, with older patients, more burdened with comorbidities. A greater use of OAC was found. Despite a reduction in risk for thromboembolic events, a high risk of CV-related death was still evident.

PMID: 29778588

Geospat Health. 2018 May 7;13(1):587.

Spatial analysis for the epidemiological study of cardiovascular diseases: A systematic literature search.

Mena C, Sepúlveda C, Fuentes E, Ormazábal Y, Palomo I.

Cardiovascular diseases (CVDs) are the primary cause of death and disability in de world, and the detection of populations at risk as well as localization of vulnerable areas is essential for adequate epidemiological management. Techniques developed for spatial analysis, among them geographical information systems and spatial statistics, such as cluster detection and spatial correlation, are useful for the study of the distribution of the CVDs. These techniques, enabling recognition of events at different geographical levels of study (e.g., rural, deprived neighbourhoods, etc.), make it possible to relate CVDs to factors present in the immediate environment. The systemic literature presented here shows that this group of diseases is clustered with regard to incidence, mortality and hospitalization as well as obesity, smoking, increased glycated haemoglobin levels, hypertension physical activity and age. In addition, acquired variables such as income, residency (rural or urban) and education, contribute to CVD clustering. Both local cluster detection and spatial regression techniques give statistical weight to the findings providing valuable information that can influence response mechanisms in the health services by indicating locations in need of intervention and assignment of available resources.

PMID: 29772872

J Lipid Res. 2018 Jul;59 (7):1266-1275.

Hypertriglyceridemia and cardiovascular risk: a cautionary note about metabolic confounding.

Sniderman AD, Couture P, Martin SS, DeGraaf J, Lawler PR, Cromwell WC, Wilkins JT, Thanassoulis G.

Triglycerides are the conventional tool to measure VLDLs, whereas LDL cholesterol (LDL-C) is the conventional tool to measure LDLs. Multiple epidemiological studies, including a series of genetically based analyses, have demonstrated that cardiovascular risk is related to triglycerides independently of LDL-C, and this has led to a series of new therapeutic agents designed specifically to reduce plasma triglycerides. The triglyceride hypothesis posits that increased levels of triglycerides increase cardiovascular risk and decreasing plasma triglycerides decreases cardiovascular risk. In this work, we will examine the validity of the triglyceride hypothesis by detailing the biological complexities associated with hypertriglyceridemia, the genetic epidemiological evidence in favor of hypertriglyceridemia, the evidence from the fibrate randomized clinical trials relating triglycerides and clinical outcomes, and the completeness of the evidence from the initial studies of novel mutations and the therapeutic agents based on these mutations that lower triglycerides. Because of the multiple metabolic links between VLDL and LDL, we will try to demonstrate that measuring triglycerides and LDL-C alone are inadequate to document the lipoprotein profile. We will try to demonstrate that apoB must be measured, as well as triglycerides and cholesterol, to have an accurate estimate of lipoprotein status.

PMCID: PMC6027915 [Available on 2019-07-01]
PMID: 29769239

Alzheimers Dement. 2018 May 12. pii: S1552-5260(18)30110-9. [Epub ahead of print]

Midlife vascular risk factors and midlife cognitive status in relation to prevalence of mild cognitive impairment and dementia in later life: The Atherosclerosis Risk in Communities Study.

Knopman DS, Gottesman RF, Sharrett AR, Tapia AL, DavisThomas S, Windham BG, Coker L, Schneider ALC, Alonso A, Coresh J, Albert MS, Mosley TH Jr.

INTRODUCTION: The interplay between midlife vascular risk factors and midlife cognitive function with later life mild cognitive impairment (MCI) and dementia (DEM) is not well understood.
METHODS: In the Atherosclerosis Risk in Communities Study, cardiovascular risk factors and cognition were assessed in midlife, ages 45-64 years. In 2011-2013, 20-25 years later, all consenting Atherosclerosis Risk in Communities participants underwent a cognitive and neurological evaluation and were given adjudicated diagnoses of cognitively normal, MCI, or DEM.
RESULTS: In 5995 participants with complete covariate data, midlife diabetes, hypertension, obesity, and hypercholesterolemia were associated with late-life MCI and DEM. Low midlife cognition function was also associated with greater likelihood of late-life MCI or DEM. Both midlife vascular risk factors and midlife cognitive function remained associated with later life MCI or DEM when both were in the model.
DISCUSSION: Later life MCI and DEM were independently associated with midlife vascular risk factors and midlife cognition.

PMID: 29763593

Circulation. 2018 May 15;137(20):2166-2178

Socioeconomic Status and Cardiovascular Outcomes: Challenges and Interventions.

Schultz WM, Kelli HM, Lisko JC, Varghese T, Shen J, Sandesara P, Quyyumi AA, Taylor HA, Gulati M, Harold JG, Mieres JH, Ferdinand KC, Mensah GA, Sperling LS.

Socioeconomic status (SES) has a measurable and significant effect on cardiovascular health. Biological, behavioral, and psychosocial risk factors prevalent in disadvantaged individuals accentuate the link between SES and cardiovascular disease (CVD). Four measures have been consistently associated with CVD in high-income countries: income level, educational attainment, employment status, and neighborhood socioeconomic factors. In addition, disparities based on sex have been shown in several studies. Interventions targeting patients with low SES have predominantly focused on modification of traditional CVD risk factors. Promising approaches are emerging that can be implemented on an individual, community, or population basis to reduce disparities in outcomes. Structured physical activity has demonstrated effectiveness in low-SES populations, and geomapping may be used to identify targets for large-scale programs. Task shifting, the redistribution of healthcare management from physician to nonphysician providers in an effort to improve access to health care, may have a role in select areas. Integration of SES into the traditional CVD risk prediction models may allow improved management of individuals with high risk, but cultural and regional differences in SES make generalized implementation challenging. Future research is required to better understand the underlying mechanisms of CVD risk that affect individuals of low SES and to determine effective interventions for patients with high risk. We review the current state of knowledge on the impact of SES on the incidence, treatment, and outcomes of CVD in high-income societies and suggest future research directions aimed at the elimination of these adverse factors, and the integration of measures of SES into the customization of cardiovascular treatment.

PMCID: PMC5958918 [Available on 2019-05-15]
PMID: 29760227

Hypertens Res. 2018 May 14.. [Epub ahead of print]

Seasonal blood pressure variation: implications for cardiovascular risk stratification.

Modesti PA, Rapi S, Rogolino A, Tosi B, Galanti G.

Long-term blood pressure variations contribute to an increased risk of cardiovascular events during cold season, requiring personalized management of antihypertensive medications in a single patient, and can influence the results of clinical trials and epidemiological surveys in population studies. In addition to blood pressure values, which guide the stratification of cardiovascular risk, other cardiovascular risk factor levels also tend to be higher in the winter months and lower in the summer months. The resultant estimation of individual cardiovascular risk may thus vary depending on the season. At the patient level, only a low value in the winter should thus be considered a true measure of low cardiovascular risk, whereas low values measured in the summer do not indicate a low risk in the winter. Likewise, estimations of cardiovascular risk in population studies may vary according to the period of the year. Efforts should thus be directed at considering the potential influence of seasonal variations in establishing "normal" and "high-risk" assessment at both the patient and population levels, integrating such data into clinical practice.

PMID: 29760460

J Am Heart Assoc. 2018 May 4;7(10). pii: e008768.

Ideal Cardiovascular Health Metrics in Couples: A Community-Based Study.

Erqou S, Ajala O, Bambs CE, Althouse AD, Sharbaugh MS, Magnani J, Aiyer A, Reis SE.

BACKGROUND: Determination of the correlation of ideal cardiovascular health variables among spousal or cohabitating partners may guide the development of couple-based interventions to reduce cardiovascular disease risk.

METHOD AND RESULTS: We used data from the HeartSCORE (Heart Strategies Concentrating on Risk Evaluation) study. Ideal cardiovascular health, defined by the American Heart Association, comprises nonsmoking, body mass index <25 kg/m2, physical activity at goal, diet consistent with guidelines, untreated total cholesterol <200 mg/dL, untreated blood pressure <120/80 mm Hg, and untreated fasting glucose <100 mg/dL. McNemar test and logistic regression were used to assess concordance patterns in these variables among partners (ie, concordance in achieving ideal factor status, concordance in not achieving ideal factor status, or discordance-only one partner achieving ideal factor status). Overall, there was a low prevalence of ideal cardiovascular health among the 231 couples studied (median age 61 years, 78% white). The highest concordances in achieving ideal factor status were for nonsmoking (26.1%), ideal fruit and vegetable consumption (23.9%), and ideal fasting blood glucose (35.6%). The strongest odds of intracouple concordance were for smoking (odds ratio, 3.6; 95% confidence interval, 1.9-6.5), fruit and vegetable consumption (odds ratio, 4.8; 95% confidence interval, 2.5-9.3) and blood pressure (odds ratio, 3.0; 95% confidence interval, 1.2-7.9). A participant had 3-fold higher odds of attaining ≥3 ideal cardiovascular health variables if he or she had a partner who attained ≥3 components (odds ratio 3.0; 95% confidence interval, 1.6-5.6).

CONCLUSIONS: Intracouple concordance of ideal cardiovascular health variables supports the development and testing of couple-based interventions to promote cardiovascular health. Fruit and vegetable consumption and smoking may be particularly good intervention targets.

PMCID: PMC6015314
PMID: 29728371

World J Cardiol. 2018 Apr 26;10(4):26-34.

Preventive fraction of physical fitness on risk factors in cardiac patients: Retrospective epidemiological study.

Caru M, Kern L, Bousquet M, Curnier D.

AIM: To quantify the preventive fraction of physical fitness on the risk factors in patients with cardiovascular diseases (CVDs).

METHODS: A total of 249 subjects (205 men and 44 women) suffering from CVD were categorized into four groups, according to their percentage of physical fitness. We calculated the odds ratio to obtain the preventive fraction in order to evaluate the impact of the physical fitness level on the risk factors (i.e., abdominal obesity, depression, diabetes, dyslipidemia, hypertension, obesity, overweight and smoking).

RESULTS: It is observed that a normal physical fitness level is sufficient to induce a preventive action on abdominal obesity (38%), diabetes (12%), hypertension (33%), obesity (12%) and overweight (11%). Also, the preventive fraction increases with the level of physical fitness, in particular for hypertension (36%) and overweight (16%). A high physical fitness level does not necessarily induce a preventive action in most risk factors, excluding depression.

CONCLUSION: This is the first study which demonstrates that reaching a normal physical fitness level is enough to induce a protection for some risk factors, despite having a CVD.

PMCID: PMC5919890
PMID: 29707165

Anaesth Crit Care Pain Med. 2018 Apr 21. pii: S2352-5568(18)30068-7. [Epub ahead of print]

Epidemiology of out-of-hospital cardiac arrest: A French national incidence and mid-term survival rate study.

Luc G, Baert V, Escutnaire J, Genin M, Vilhelm C, Di Pompéo C, Khoury CE, Segal N, Wiel E, Adnet F, Tazarourte K, Gueugniaud PY, Hubert H; On behalf GR-RéAC.

Out-of-hospital cardiac arrest (OHCA) is considered an important public health issue but its incidence has not been examined in France. The aim of this study is to define the incidence of OHCA in France and to compare this to other neighbouring countries. Data were extracted from the French OHCA registry. Only exhaustive centres during the period from January 1, 2013, to September 30, 2014 were included. All patients were included, regardless of their age and cause of OHCA. The participating centres covered about 10% of the French population. The study involved 6918 OHCA. The median age was 68 years, with 63% of males. Paediatric population (<15years) represented 1.8%. The global incidence of OHCA was 61.5 per 100,000 inhabitants per year in the total population corresponding to approximately 46,000 OHCA per year. In the adult population, we found an incidence of 75.3 cases per 100,000 inhabitants per year. In adults, the incidences were 100.3 and 52.7 in males and females, respectively. Most (75%) OHCA occurred at home and were due to medical causes (88%). Half of medical OHCA had cardiovascular causes. Survival rates at 30 days was 4.9% [4.4; 5.4] and increased to 10.4% [9.1; 11.7] when resuscitation was immediately performed by bystander at patient's collapse. The incidence and survival at 30 days of OHCA in France appeared similar to that reported in other European countries. Compared to other causes of deaths in France, OHCA is one of the most frequent causes, regardless of the initial pathology.

PMID: 29684654

Prog Cardiovasc Dis. 2018 Apr 18. pii: S0033-0620(18)30074-4.

Mediterranean Diet and Cardiovascular Disease Prevention: What Do We Know?

Salas-Salvadó J, Becerra-Tomás N, García-Gavilán JF, Bulló M, Barrubés L.

Cardiovascular disease (CVD) morbidity and mortality is increasing, representing an important public health issue worldwide. It is well-known that risk of CVD is substantially influenced by lifestyle, including poor diet, tobacco smoking and physical inactivity. In the last years, the so-called Mediterranean Diet (MedDiet) has been associated with broad healthy benefits on human health, including protection against CVD. The present narrative review aimed to summarize and discuss the evidence from meta-analyses of epidemiological and clinical trials analyzing MedDiet and CVD risk. The MedDiet is one of the best dietary patterns analyzed in relation to CVD risk and other health outcomes. Studies demonstrated that MedDiet has beneficial effects in the prevention of total and specific types of CVD, albeit a moderate-high degree of inconsistency has been reported and few studies have been included in most of the meta-analyses. As consequence, more high-quality prospective cohorts and randomized clinical trials are warranted in order to increase the confidence in the effect estimates.

PMID: 29678447

Diabetes Res Clin Pract. 2018 Apr;138:81-89.

Mortality trends and cause of death in patients with new-onset type 2 diabetes and controls: A 24-year follow-up prospective cohort study.

Andersson T, Hjerpe P, Carlsson AC, Pivodic A, Wändell P, Manhem K, Bengtsson Boström K.

AIMS: Our aim was to assess causes of death and temporal changes in excess mortality among patients with new-onset type 2 diabetes in Skaraborg, Sweden.
METHODS: Patients from the Skaraborg Diabetes Register with prospectively registered new-onset type 2 diabetes 1991-2004 were included. Five individual controls matched for sex, age, geographical area and calendar year of study entry were selected using population records. Causes of deaths until 31 December 2014 were retrieved from the Cause of Death Register. Adjusted excess mortality among patients and temporal changes of excess mortality were calculated using Poisson models. Cumulative incidences of cause-specific mortality were calculated by competing risk regression.
RESULTS: During 24 years of follow-up 4364 deaths occurred among 7461 patients in 90,529 person-years (48.2/1000 person-years, 95% CI 46.8-49.7), and 18,541 deaths in 479,428 person-years among 37,271 controls (38.7/1000 person-years, 38.1-39.2). The overall adjusted mortality hazard ratio was 1.47 ($p < .0001$) among patients diagnosed at study start 1991 and decreased by 2% ($p < .0001$) per increase in calendar year of diagnosis until 2004. Excess mortality was mainly attributed to endocrine and cardiovascular cause of death with crude subdistributional hazard ratios of 5.06 ($p < .001$) and 1.22 ($p < .001$).
CONCLUSIONS: Excess mortality for patients with new-onset type 2 diabetes was mainly attributed to deaths related to diabetes and the cardiovascular system, and decreased with increasing year of diagnosis 1991-2004. Possible explanations could be temporal trends of earlier diagnosis due to lowered diagnostic thresholds and intensified diagnostic activities, as well as improved treatment.

PMID: 29421310 [Indexed for MEDLINE]

Menopause. 2018 May;25(5):483-492.

Cardiovascular and metabolic morbidity after hysterectomy with ovarian conservation: a cohort study.

Laughlin-Tommaso SK, Khan Z, Weaver AL, Smith CY, Rocca WA, Stewart EA.

OBJECTIVE: The aim of the study was to determine the long-term risk of cardiovascular disease and metabolic conditions in women undergoing hysterectomy with bilateral ovarian conservation compared with age-matched referent women.
METHODS: Using the Rochester Epidemiology Project records-linkage system, we identified 2,094 women who underwent hysterectomy with ovarian conservation for benign indications between 1980 and 2002 in Olmsted County, Minnesota. Each woman was age-matched (±1 y) to a referent woman residing in the same county who had not undergone prior hysterectomy or any oophorectomy. These two cohorts were followed historically to identify de novo cardiovascular or metabolic diagnoses. We estimated hazard ratios (HRs) and 95% CIs using Cox proportional hazards models adjusted for 20 preexisting chronic conditions and other potential confounders. We also calculated absolute risk increases and reductions from Kaplan-Meier estimates.
RESULTS: Over a median follow-up of 21.9 years, women who underwent hysterectomy experienced increased risks of de novo hyperlipidemia (HR 1.14; 95% CI, 1.05-1.25), hypertension (HR 1.13; 95% CI, 1.03-1.25), obesity (HR 1.18; 95% CI, 1.04-1.35), cardiac arrhythmias (HR 1.17; 95% CI, 1.05-1.32), and coronary artery disease (HR 1.33; 95% CI, 1.12-1.58). Women who underwent hysterectomy at age ≤35 years had a 4.6-fold increased risk of congestive heart failure and a 2.5-fold increased risk of coronary artery disease.
CONCLUSIONS: Even with ovarian conservation, hysterectomy is associated with an increased long-term risk of cardiovascular and metabolic conditions, especially in women who undergo hysterectomy at age ≤35 years. If these associations are causal, alternatives to hysterectomy should be considered to treat benign gynecologic conditions.

PMCID: PMC5898981 [Available on 2019-05-01]
PMID: 29286988

J Agric Food Chem. 2018 May 30;66(21):5257-5263. Epub 2018 Jan 10.

Coffee Consumption and Cardiovascular Disease: A Condensed Review of Epidemiological Evidence and Mechanisms.

Rodríguez-Artalejo F, López-García E.

Coffee is one of the most widely consumed beverages, and some studies have suggested it may be related to cardiovascular disease (CVD), the leading cause of poor health in the world. This review evaluates the evidence on the effect of habitual coffee consumption on CVD incidence and mortality. The review is based mostly on observational studies and meta-analyses of the literature. In healthy people, in comparison to not consuming coffee, habitual consumption of 3-5 cups of coffee per day is associated with a 15% reduction in the risk of CVD, and higher consumption has not been linked to elevated CVD risk. Moreover, in comparison to no coffee intake, usual consumption of 1-5 cups/day is associated with a lower risk of death. In people who have already suffered a CVD event, habitual consumption does not increase the risk of a recurrent CVD or death. However, hypertensive patients with uncontrolled blood pressure should avoid consuming large doses of caffeine. In persons with well-controlled blood pressure, coffee consumption is probably safe, but this hypothesis should be confirmed by further investigations.

PMID: 29276945 [Indexed for MEDLINE]

Alzheimers Dement. 2018 May;14(5):579-589

Midlife cardiovascular health and 20-year cognitive decline: Atherosclerosis Risk in Communities Study results.

González HM, Tarraf W, Harrison K, Windham BG, Tingle J, Alonso A, Griswold M, Heiss G, Knopman D, Mosley TH.

INTRODUCTION: The aim was to examine associations between midlife cardiovascular health (CVH) and 20-year cognitive decline among blacks and whites.
METHODS: Midlife CVH metrics (American Heart Association's Life's Simple 7) were calculated and examined in relation to midlife and 20-year change in cognitive function among 13,270 whites and blacks from the Atherosclerosis Risk in Communities Cohort Study. We used linear mixed models to estimate adjusted associations of midlife CVH with midlife cognitive status and change.
RESULTS: Higher midlife (Life's Simple 7) scores and individual metrics, particularly blood pressure and glucose, were associated with better midlife cognition and reduced 20-year decline. Midlife CVH 20-year neuroprotection was more pronounced among whites than blacks.
DISCUSSION: Better midlife CVH was associated with higher midlife and reduced decline in cognitive function 20 years later. However, the benefits of midlife CVH on cognition were stronger for whites than for blacks. Our findings suggest that improved midlife CVH may promote enduring cognitive health.

PMCID: PMC5938099 [Available on 2019-05-01]
PMID: 29268079

Nat Rev Cardiol. 2018 Apr;15(4):230-240.

Epidemiology of cardiovascular disease in young individuals.

Andersson C, Vasan RS.

In the past 2 decades, a high prevalence of risk factors for cardiovascular disease, such as obesity, physical inactivity, and poor diet, has been observed among young individuals living in developed countries. The rate of substance abuse (opioids, cocaine, electronic cigarettes, and anabolic steroids) is also increasing among young adults, whereas cigarette smoking might be declining. Among younger individuals (aged 18-50 years), the incidence of cardiovascular diseases over the same time period has either been steady or has increased, in contrast to the trend towards a lower incidence of cardiovascular disease in adults aged >50 years. Current observations might, therefore, be used to forecast a potential epidemic of cardiovascular disease in the near future as the younger segment of the population ages. In this Review, we discuss the burden of risk factors for ischaemic heart disease, heart failure, atrial fibrillation, and sudden cardiac death among young adults aged 18-45 years. Furthermore, we discuss the prevalence, incidence, and temporal trends of various cardiovascular diseases among this young segment of the population.

PMID: 29022571

Diabetologia. 2018 May;61(5):987-995.

Biomarkers of cardiovascular disease: contributions to risk prediction in individuals with diabetes.

Bachmann KN, Wang TJ.

Cardiovascular disease is a leading cause of death, especially in individuals with diabetes mellitus, whose risk of morbidity and mortality due to cardiovascular disease is markedly increased compared with the general population. There has been growing interest in the identification of biomarkers of cardiovascular disease in people with diabetes. The present review focuses on the current and potential contributions of these biomarkers to predicting cardiovascular risk in individuals with diabetes. At present, certain biomarkers and biomarker combinations can lead to modest improvements in the prediction of cardiovascular disease in diabetes beyond traditional cardiovascular risk factors. Emerging technologies may enable the discovery of novel biomarkers and generate new information about known biomarkers (such as new combinations of biomarkers), which could lead to significant improvements in cardiovascular disease risk prediction. A critical question, however, is whether improvements in risk prediction will affect processes of care and decision making in clinical practice, as this will be required to achieve the ultimate goal of improving clinical outcomes in diabetes.

PMCID: PMC5874155 [Available on 2019-05-01]
PMID: 28956084

Am J Health Promot. 2018 Jun;32(5):1221-1227.

An Epidemiological Study of Population Health Reveals Social Smoking as a Major Cardiovascular Risk Factor.

Gawlik KS, Melnyk BM, Tan A.

PURPOSE: To present nationally representative data on the prevalence of "social" smoking and its relationship to cardiovascular health.
DESIGN: A population-based, cross-sectional survey on cardiovascular health and its risk factors across the United States.
SETTING: Million Hearts® cardiovascular screenings that took place in community settings.
PARTICIPANTS: De-identified data were collected on a convenient sample of 39, 555 participants.
MEASURES: Reported smoking status, blood pressure, and total cholesterol.
ANALYSIS: The prevalence of current smoking, social smoking, and non-smoking were cross-tabulated and stratified by sample characteristics. The adjusted estimates were derived from multiple logistic regression models, adjusting for demographics and other biometric measures.
RESULTS: Ten percent identified as social smokers. Social smokers were more likely to be aged between 21 and 40, male, and Hispanic. Social smokers had significantly higher risks of having hypertension (odds ratio [OR]: 2.08, 95% confidence interval [CI]: 1.80-2.41) and elevated cholesterol (OR: 1.53, 95% CI: 1.33-1.75) than non-smokers. There was no significant difference between social smokers and current smokers (OR = 0.94, 95% CI = 0.80-1.14 for hypertension and OR = 0.95, 95% CI = 0.81-1.11 for elevated cholesterol).
CONCLUSION: This is the first population health study to compare the blood pressure and cholesterol levels of people who self-identify as current verses social smokers. Although previous smoking behavior was not controlled for in the analysis, this study demonstrates there is no significant difference in the prevalence of elevated blood pressure or cholesterol among the 2 smoking groups.

PMID: 28464696

Definitions, Classification, and Epidemiology of Obesity.

Purnell JQ.

In: De Groot LJ, Chrousos G, Dungan K, Feingold KR, Grossman A, Hershman JM, Koch C, Korbonits M, McLachlan R, New M, Purnell J, Rebar R, Singer F, Vinik A, editors. Endotext [Internet].
South Dartmouth (MA): MDText.com, Inc.; 2000-.2018 Apr 12.

Obesity is now recognized as a chronic or non-communicable disease. Recent research has clarified the physiology of weight regulation, the pathophysiology that leads to unwanted weight gain and maintenance of the obese state even when reasonable attempts in lifestyle improvement are made, and the adverse health consequences of generalized and central obesity. While more sensitive and specific imaging methods to quantify body composition are available, most office-based practitioners will need measure only height, weight, and waist circumference. With these, a patient's risk for obesity-related co-morbidities such as type 2 diabetes mellitus and cardiovascular disease can be estimated and appropriate treatment plans and goals established. Within the United States, prevalence rates for generalized obesity (BMI > 30 kg/m2), extreme obesity (BMI > 40 kg/m2), and central obesity are continuing to rise with peak obesity rates occurring in the 5th-7thdecades. Women have more generalized obesity but less central obesity than men, and obesity disproportionately affects US minorities. Of concern are increases in obesity rates in youth (ages 2-19 years) in the US as well as around the globe. This trend will likely continue to fuel the global obesity epidemic for decades to come, worsening population health, creating infrastructural challenges as countries attempt to meet the additional health-care demands, and greatly increasing health-care expenditures world-wide. Beyond individual weight management, societal and economic innovations will be necessary that focus on strategies to prevent further increases in overweight and obesity rates.

PMID: 25905390

Outcomes Cardiovasculares

Pesquisa Bibliográfica efectuada em Pubmed (www.ncbi.nlm.nih.gov/ - Abr a Jun 2018

Kidney Int Rep. 2018 Apr 16;3(4):939-949.

Change in Albuminuria and Risk of Renal and Cardiovascular Outcomes: Natural Variation Should Be Taken into Account.

Smith M, Herrington WG, Weldegiorgis M, Hobbs FR, Bankhead C, Woodward M.

Introduction: Changes in urinary albumin-to-creatinine ratio (UACR) may affect the risk of advanced chronic kidney disease (CKD). How much the association changes after taking account for natural variation in UACR and the length of time taken to observe changes in UACR is unknown.

Methods: English Clinical Practice Research Datalink records (2000-2015) with linkage to secondary care and death certification were used to identify prospective cohorts with at least 2 measures of UACR within 1, 2, and 3 years. Adjusted Cox regression assessed the separate relevance of the baseline UACR and the UACR change to the risk of developing stages 4 to 5 CKD and end-stage renal disease (ESRD). Associations were compared before and after accounting for the effects of the natural variation in UACR (i.e., regression to the mean).

Results: A total of 212,810 individuals had baseline UACR measurements; 22% had a UACR ≥3.4 mg/mmol, and 3% had UACR ≥33.9 mg/mmol. During a median 4-year follow-up, 5976 developed stage 4 to 5 CKD, and 1076 developed ESRD. There were strong associations between baseline UACR and stage 4 to 5 CKD or ESRD risk, which doubled in strength after accounting for regression to the mean. Over 3 years, the hazard ratios (95% confidence intervals) for stage 4 to 5 CKD, relative to stable UACR, were 0.62 (0.50-0.77) for at least a halving of UACR and 2.68 (2.29-3.14) for at least a doubling of UACR. Associations were weaker for shorter exposure windows (and for cardiovascular disease or death), but strengthened after allowing for regression to the mean.

Conclusion: Baseline values and subsequent medium-term increases in albuminuria are both associated with substantially increased risk of developing advanced CKD. Standard analyses, not allowing for natural variation in UACR, may underestimate these associations.

PMCID: PMC6035156
PMID: 29988998

Eur Heart J Qual Care Clin Outcomes. 2018 Jun 28. [Epub ahead of print]

Perioperative Cardiovascular Outcomes of Non-Cardiac Solid Organ Transplant Surgery.

Smilowitz NR, Guo Y, Rao S, Gelb B, Berger JS, Bangalore S.

Background: Perioperative cardiovascular outcomes of transplant surgery are not well defined. We evaluated the incidence of perioperative major cardiovascular and cerebrovascular events (MACCE) after non-cardiac transplant surgery from a large database of hospital admissions from the United States.
Methods: Patients ≥18 years of age undergoing non-cardiac solid organ transplant surgery from 2004 to 2014 were identified from the Healthcare Cost and Utilization Project's (HCUP) National Inpatient Sample (NIS). The primary outcome was perioperative MACCE, defined as in-hospital death, myocardial infarction (MI), or ischemic stroke.
Results: A total of 49,978 hospitalizations for transplant surgery were identified. Renal (67.3%), liver (21.6%), and lung (6.7%) transplantation were the most common surgeries. Perioperative MACCE occurred in 1,539 transplant surgeries (3.1%). Recipients of organ transplantation were more likely to have perioperative MACCE in comparison to non-transplant, non-cardiac surgery (3.1% vs. 2.0%, p<0.001; adjusted OR [aOR] 1.29, 95% CI 1.22-1.36). MACCE after transplant surgery were driven by increased mortality (1.7% vs. 1.1%, p<0.001; aOR 1.15, 95% CI 1.07-1.23) and MI (1.2% vs. 0.6%, p<0.001; aOR 2.26, 95% CI 2.09-2.46) versus non-transplant surgery, with lower rates of stroke (0.3% vs. 0.5%, p<0.001; aOR 0.56, 95% CI 0.47-0.65). Among patients hospitalized for renal, liver, and lung transplantation, MACCE occurred in 1.7%, 5.6%, and 7.5%, respectively, with no difference in the frequency of MI by surgery type.
Conclusions: Cardiovascular outcomes of transplant surgery vary by surgical subtype and are largely driven by increased perioperative death and MI. Efforts to reduce cardiovascular risks of non-cardiac organ transplant surgery are necessary.

PMID: 29961872

J Am Heart Assoc. 2018 Jun 30;7(13). pii: e008226.

Relationship Between Plasma 8-OH-Deoxyguanosine and Cardiovascular Disease and Survival in Type 2 Diabetes Mellitus: Results From the ADVANCE Trial.

Thomas MC, Woodward M, Li Q, Pickering R, Tikellis C, Poulter N, Cooper ME, Marre M, Zoungas S, Chalmers J; ADVANCE Collaborative Group.

BACKGROUND: 8-Oxo-2'-deoxyguanosine (8-oxo-2'-dG) is a biomarker of oxidative DNA damage that is associated with cardiovascular disease and premature mortality in the general population. Although oxidative stress has a proven role in cardiovascular complications in diabetes mellitus, evidence for a relationship between plasma 8-oxo-2'-dG and major cardiovascular outcomes in diabetes mellitus is weak.
METHODS AND RESULTS: A case-cohort study was performed in 3766 participants with prevalent diabetes mellitus in the ADVANCE (Action in Diabetes and Vascular Disease: Preterax and Diamicron Modified Release Controlled Evaluation) trial (ClinicalTrials.gov number NCT00145925). The hazard ratios for mortality and major acute cardiovascular events were derived using Cox regression models. During a median of 5 years of follow-up, 695 (18.4%) participants in this enriched cohort died (including 354 deaths from cardiovascular disease). Individuals with higher levels of 8-oxo-2'-dG were more likely to die. After adjusting for cardiovascular disease risk factors, the hazard ratio for a 1-SD increase in plasma 8-oxo-2'-dG was 1.10 (95% confidence interval, 1.01-1.20; P=0.03). This was driven by an independent association between plasma 8-oxo-2'-Dg and cardiovascular death (hazard ratio, 1.23; 95% confidence interval, 1.10-1.37 [P<0.001]). By contrast, no association was seen between 8-oxo-2'-dG and noncardiovascular disease death (of which cancer was the major single cause). 8-Oxo-2'-dG was also not significantly associated with either nonfatal myocardial infarction or nonfatal stroke.
CONCLUSIONS: In adults with type 2 diabetes mellitus, increased levels of 8-oxo-2'-dG are independently associated with all-cause mortality and cardiovascular mortality in adults with longstanding type 2 diabetes mellitus who participated in the ADVANCE trial, consistent with the role of oxidative damage in the development and progression of cardiovascular decompensation in diabetes mellitus.
CLINICAL TRIAL REGISTRATION: URL: http://www.clinicaltrials.gov. Unique identifier: NCT00145925.

PMID: 29960985

Endokrynol Pol. 2018 Jun 28. [Epub ahead of print]

Long-term risk of rosiglitazone on cardiovascular events: a systematic review and meta-analysis.

Cheng D, Gao H, Li W.

Rosiglitazone has been proposed as a treatment strategy for type 2 diabetes mellitus (T2DM), could provide robust glucose-lowering capability with risk of cardiovascular events. We thus did a systematic review and meta-analysis of controlled trials to assess the effect of this treatment on glycaemic control, cardiovascular events in patients with T2DM. We systematically search PubMed, Embase and Cochrane Central Register of Controlled Trials comparing rosiglitazone to other anti-diabetic treatments. These studies included randomized controlled trials (RCTs), cohort studies, and case-control studies that had treatment at least 6 months of follow-up in patients with T2DM. We aimed to evaluate the long-term effect on cardiovascular risk of rosiglitazone compared with basal insulin drug. Main outcomes included myocardial infarction, heart failure, stroke, cardiovascular mortality and all-cause mortality. We included 11RCTs and 4 observational studies involving 20,079 individuals with T2DM allocated to rosiglitazone and a similar number to comparison groups of which only five compared rosiglitazone with placebo and collected data on cardiovascular outcomes. Among patients with T2DM, the rosiglitazone is associated with a significantly increased risk of heart failure, with little increased risk of myocardial infarction, without a significantly increased risk of stroke, cardiovascular mortality and all-cause mortality compared with placebo or active controls. Alternative methods to reduce the uncertainty in long-term pragmatic evaluations, inclusion of rosiglitazone in factorial trials, publication of cardiovascular outcome data from adverse event reporting in trials of rosiglitazone and a cardiovascular endpoint trial of rosiglitazone among people without diabetes.

PMID: 29952413

Diab Vasc Dis Res. 2018 Jun 1:1479164118783935.

Cardiovascular outcomes in patients who experienced a myocardial infarction while treated with liraglutide versus placebo in the LEADER trial.

Nauck MA, Tornøe K, Rasmussen S, Treppendahl MB, Marso SP; LEADER Publication Committee on behalf of the LEADER Trial Investigators.

OBJECTIVE: Animal studies demonstrated that glucagon-like peptide-1 receptor agonists reduce myocardial necrosis following regional ischaemia induction. This effect may improve cardiovascular outcomes after myocardial infarction. Risk of cardiovascular death or hospitalisation for heart failure after myocardial infarction was evaluated in patients with type 2 diabetes at high cardiovascular risk in the LEADER trial.
METHODS: Data from patients randomised to liraglutide or placebo, in addition to standard of care, in Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results (LEADER) (NCT01179048) were analysed post hoc. Cox regression, with myocardial infarction as a time-dependent covariate, was used to analyse time from randomisation to a composite of cardiovascular death or hospitalisation for heart failure.
RESULTS: Patients who experienced myocardial infarction had a sevenfold higher risk of the composite endpoint (with myocardial infarction: n=148, 25.0%; without myocardial infarction: n=716, 8.2%; hazard ratio: 7.0; 95% confidence interval: 5.8, 8.4). The risk of the composite endpoint after myocardial infarction was not significantly lower in the liraglutide group (n=63, 23.0%) compared with placebo (n=85, 26.7%; hazard ratio: 0.91; 95% confidence interval: 0.66, 1.26).
CONCLUSION: The data demonstrated that having myocardial infarction significantly increased the risk of subsequent cardiovascular death or hospitalisation for heart failure. However, we did not find evidence for a reduced risk in these cardiovascular outcomes following myocardial infarction in patients treated with liraglutide versus placebo.

PMID: 29947247

J Formos Med Assoc. 2018 Jun 23. pii: S0929-6646(18)30069-X.

On-treatment lipid profiles to predict the cardiovascular outcomes in ASCVD patients comorbid with chronic kidney disease - The multi-center T-SPARCLE registry study.

Ho LT, Lin FJ, Tseng WK, Yin WH, Wu YW, Li YH, Yeh HI, Chen JW, Wu CC; Taiwanese Secondary Prevention for Patients with AtheRosCLErotic Disease (T-SPARCLE) Registry Investigators.

BACKGROUND: The aim of this study is to determine the relationship between the on-treatment lipid profiles and the CV events in CKD and non-CKD population.
METHOD: This study was a multi-center observational registry, the Taiwanese Secondary Prevention for patients with AtheRosCLErotic disease (T-SPARCLE) Registry. This study follows up patients with CV diseases in Taiwan who have secondary prevention therapies. The primary outcome is the time of first occurrence of a major adverse cardiac events (MACEs).
RESULT: 5388 patients with ASCVD were included and 1478 (27.4%) had CKD without dialysis. CKD patients had higher TG and lower LDL-C levels. The incidence of recurrent MACEs per 1000 person-years in CKD patients was 19.5 (95% CI 15.5-24.9), compared with 9.1 (95% CI 7.4-11.1) in non-CKD patients. In patients with statin therapy, there were no differences in MACE risk between each level of on-treatment LDL-C, TG and HDL-C level. Higher on-treatment non-HDL-C level was a significant predictor for higher MACE risk in patients without CKD, and borderline significant in CKD patients under statin therapy. Heart failure history was also associated with higher MACE risk in both group. Lower body mass index (BMI < 23 kg/m2) was associated with higher MACE risk in CKD patients.
CONCLUSION: In ASCVD patients, on-treatment LDL-C was not a good CV outcome predictor. Instead, on-treatment non-HDL-C was a better predictor. Heart failure history was also associated with higher MACE risk in both group of patients. Lower BMI (<23 kg/m2) was associated with higher recurrent MACE risk in CKD patients.

PMID: 29945742

Diabetes Res Clin Pract. 2018 Jun 23;143:88-100.

Cardiovascular outcome studies in type 2 diabetes: Comparison between SGLT2 inhibitors and GLP-1 receptor agonists.

Scheen AJ.

Sodium-glucose cotransporter type 2 inhibitors (SGLT2is) and glucagon-like peptide-1 receptor agonists (GLP-1RAs) are two pharmacological classes that have proven their efficacy to reduce major cardiovascular events (MACEs) in patients with type 2 diabetes mellitus (T2DM) and established cardiovascular disease in large prospective cardiovascular outcome trials (CVOTs): EMPA-REG OUTCOME (empagliflozin), CANVAS (canagliflozin), LEADER (liraglutide) and SUSTAIN 6 (semaglutide). Some heterogeneity appears to exist between the various agents within the two pharmacological classes. Whether these positive results could be extrapolated to patients without cardiovascular disease is still unknown. The underlying mechanisms remain a matter of debate but appear to differ between SGLT2is and GLP-1RAs. One crucial question is which patient's characteristics should be taken into account to guide the choice between a SGLT2i or a GLP-1RA according to a personalized approach. Heart failure should encourage the use of a SGLT2i whereas moderate to severe chronic kidney disease should favour the prescription of a GLP-1RA. Despite the results of recent CVOTs, numerous patients who are good candidates for benefiting of these agents do not receive them in clinical practice. Currently, there is a paradigm shift in T2DM management, moving from a primary objective of glucose control to a cardiovascular and renal protection.

PMID: 29944969

Circulation. 2018 Jun 25. pii: CIRCULATIONAHA.118.035901.

Cardiovascular and Renal Outcomes With Canagliflozin According to Baseline Kidney Function: Data from the CANVAS Program.

Neuen BL, Ohkuma T, Neal B, Matthews DR, de Zeeuw D, Mahaffey KW, Fulcher G, Desai M, Li Q, Deng H, Rosenthal N, Jardine MJ, Bakris G, Perkovic V.

Background : Canagliflozin is approved for glucose lowering in type 2 diabetes and confers cardiovascular and renal benefits. We sought to assess whether it had benefits in people with chronic kidney disease (CKD), including those with an estimated glomerular filtration rate (eGFR) between 30 and 45 mL/min/1.73 m2 in whom the drug is not currently approved for use.
Methods : The CANagliflozin cardioVascular Assessment Study Program (CANVAS) randomized 10,142 participants with type 2 diabetes and eGFR greater than 30 mL/min/1.73 m2 to canagliflozin or placebo. The primary outcome was a composite of cardiovascular death, nonfatal myocardial infarction, or nonfatal stroke, with other cardiovascular, renal, and safety outcomes. This secondary analysis describes outcomes in participants with and without CKD, defined as eGFR <60 and ≥60 mL/min/1.73 m2, and according to baseline kidney function (eGFR <45, 45-<60, 60-<90, and ≥90 mL/min/1.73 m2).
Results : At baseline, 2039 (20.1%) participants had an eGFR <60 mL/min/1.73 m2, of whom 71.6% had a history of cardiovascular disease. The effect of canagliflozin on the primary outcome was similar in people with CKD (HR 0.70, 95% CI 0.55-0.90) and those with preserved kidney function (HR 0.92, 95% CI 0.79-1.07, P heterogeneity = 0.08). Relative effects on most cardiovascular and renal outcomes were similar across eGFR subgroups, with possible heterogeneity suggested only for the outcome of fatal/nonfatal stroke (P heterogeneity = 0.01), as were results for almost all safety outcomes.
Conclusions: The effect of canagliflozin on cardiovascular and renal outcomes was not modified by baseline level of kidney function in people with type 2 diabetes and a history or high risk of cardiovascular disease down to eGFR levels of 30 mL/min/1.73 m2 Reassessing current limitations on the use of canagliflozin in CKD may allow additional individuals to benefit from this therapy. Clinical Trial Registration: URL: https://clinicaltrials.gov. Unique identifiers: NCT01032629, NCT01989754.

PMID: 29941478

Diabetes Res Clin Pract. 2018 Jun 20;143:34-42.

Cardiovascular safety of GLP-1 receptor agonists for diabetes patients with high cardiovascular risk: A meta-analysis of cardiovascular outcomes trials.

Wang Q, Liu L, Gao L, Li Q.

AIM: To show long-term cardiovascular safety of the GLP-1 receptor agonists for diabetes patients with cardiovascular risk.
METHODS: For cardiovascular outcomes, the association between treatment and outcomes was estimated using the odds ratio and 95% confidence interval. I2 test was adopted to assess the magnitude of heterogeneity between studies, with values more than 25%, 50%, and 75% defined as low, moderate, or high heterogeneity.
RESULTS: We combined data from four cardiovascular outcomes trials and prospectively blinded endpoint adjudication. 4105 cardiovascular events including cardiovascular death, acute MI or stroke experienced during the trials. And the odds ratios of the cardiovascular outcomes were 0.90 (95% CI 0.81, 1.00) for the cardiovascular outcome, 0.93 (95% CI 0.85, 1.02) for nonfatal myocardial infarction, 0.88 (95% CI 0.76, 1.03) for nonfatal stroke, 0.94 (95% CI 0.84, 1.05) for heart failure hospitalization, 0.89 (95% CI 0.63, 1.27) for pancreatitis, 0.98 (95% CI 0.92, 1.05) for any hypoglycemic events, 0.92 (95% CI 0.83, 1.01) for the severe hypoglycemic events, 0.96 (95% CI 0.83, 1.01) for serious adverse events. Significant differences showed in mortality parameters: 0.88 (95% CI 0.81, 0.95) for all-cause mortality, 0.87 (95% CI 0.79, 0.97) for cardiovascular mortality. CV benefits were obtained in the male, black, Asian patients and patients with BMI ≥ 30 kg/m2.
CONCLUSION: Additional GLP-1 receptor agonists treatment did not increase cardiovascular outcomes in diabetes patients with high cardiovascular risk or established cardiovascular disease.

PMID: 29935211

Eur Endocrinol. 2018 Apr;14(1):17-23.

The Cardiovascular Benefits Associated with the Use of Sodium-Glucose Cotransporter 2 Inhibitors - Real-World Data.

Baptist G.

Type 2 diabetes (T2D) is associated with numerous comorbidities that significantly reduce quality of life, increase mortality and complicate treatment decisions. In a recent cardiovascular outcomes trial, Empagliflozin Cardiovascular Outcome Event Trial in Type 2 Diabetes Mellitus Patients (EMPA-REG OUTCOME), the sodium-glucose cotransporter 2 (SGLT2) inhibitor empagliflozin was shown to reduce cardiovascular (CV) mortality and heart failure in high-risk patients with T2D with a previous CV event or with established CV disease (CVD). Recently published data from the Canagliflozin Cardiovascular Assessment Study (CANVAS-PROGRAM) study suggested that the cardiovascular benefits of empagliflozin are also seen with the SGLT2-inhibitor canagliflozin, indicating a class effect of SGLT2 inhibitors. Evidence for a class effect has also been shown by meta-analyses and real-world studies, including the Comparative Effectiveness of Cardiovascular Outcomes in New Users of SGLT-2 Inhibitors (CVD-REAL) and The Health Improvement Network (THIN) databases. These findings also suggest the results of EMPA-REG OUTCOME can be applied to patients with T2D with a broader CV risk profile, including people at low risk of CVD.

PMCID: PMC5954590
PMID: 29922347

Lipids Health Dis. 2018 Jun 19;17(1):142.

Relation between high density lipoprotein particles concentration and cardiovascular events: a meta-analysis.

Wu Y, Fan Z, Tian Y, Liu S, Liu S.

BACKGROUND: Trails aimed at raising high density lipoprotein(HDL) cholesterol concentration failed to make better cardiovascular outcomes. HDL particles may be better biomarkers reflecting properties of HDL. This meta-analysis was conducted to evaluate the relation between blood HDL particles level and cardiovascular events.
METHODS: PubMed and other databases were searched for eligible studies and NewCastle-Ottawa Quality Assessment Scale(NOS) was used to assess the quality of included studies. A random or fixed-effect model was applied to calculate the pooled hazard ratio (HR).
RESULTS: Twelve studies were finally included. The pooled HR (95%confidence interval) for per standard deviation (SD) increment and top quartile versus bottom quartile were 0.79(0.72,0.86) and 0.65(0.57,0.75), respectively. Subgroup analysis suggested that HR was significantly lower in subjects with a cardiovascular disease (CVD) history than that of people without established CVD. Subclass analysis indicated that HRs for per SD increment of small (0.85) and medium(0.84) HDL particles were significantly lower than that of large HDL
Particles (0.96).
CONCLUSIONS: HDL particle level in blood was inversely related to CVD events, indicating that HDL particles maybe a protective factor in patients with CVD, thus making HDL particles a potential biomarker and therapy target.

PMCID: PMC6009809
PMID: 29921280

Diabetes Care. 2018 Jun 14. pii: dc172677.

Hypoglycemia, Cardiovascular Outcomes, and Death: The LEADER Experience.

Zinman B, Marso SP, Christiansen E, Calanna S, Rasmussen S, Buse JB; LEADER Publication Committee on behalf of the LEADER Trial Investigators.

OBJECTIVE: In the Liraglutide Effect and Action in Diabetes: Evaluation of Cardiovascular Outcome Results (LEADER) cardiovascular (CV) outcomes trial (NCT01179048), liraglutide significantly reduced the risk of CV events (by 13%) and hypoglycemia versus placebo. This post hoc analysis examines the associations between hypoglycemia and CV outcomes and death.

RESEARCH DESIGN AND METHODS: Patients with type 2 diabetes and high risk for CV disease (n = 9,340) were randomized 1:1 to liraglutide or placebo, both in addition to standard treatment, and followed for 3.5-5 years. The primary end point was time to first major adverse cardiovascular event (MACE) (1,302 first events recorded), and secondary end points included incidence of hypoglycemia. We used Cox regression to analyze time to first MACE, CV death, non-CV death, or all-cause death with hypoglycemia as a factor or time-dependent covariate.

RESULTS: A total of 267 patients experienced severe hypoglycemia (liraglutide n = 114, placebo n = 153; rate ratio 0.69; 95% CI 0.51, 0.93). These patients had longer diabetes duration, higher incidence of heart failure and kidney disease, and used insulin more frequently at baseline than those without severe hypoglycemia. In combined analysis (liraglutide and placebo), patients with severe hypoglycemia were more likely to experience MACE, CV death, and all-cause death, with higher risk shortly after hypoglycemia. The impact of liraglutide on risk of MACE was similar in patients with and without severe hypoglycemia (P-interaction = 0.90).

CONCLUSIONS: Patients experiencing severe hypoglycemia were at greater risk of CV events and death, particularly shortly after the hypoglycemic episode. While causality remains unclear, reducing hypoglycemia remains an important goal in diabetes management.

PMID: 29903847

Diabetes Care. 2018 Jun 14. pii: dc180158.

Adiponectin, Free Fatty Acids, and Cardiovascular Outcomes in Patients With Type 2 Diabetes and Acute Coronary Syndrome.

Schrieks IC, Nozza A, Stähli BE, Buse JB, Henry RR, Malmberg K, Neal B, Nicholls SJ, Rydén L, Mellbin L, Svensson A), Wedel H, Weichert A, Lincoff AM, Tardif JC, Grobbee DE, Schwartz GG.

OBJECTIVE: In observational cohorts, adiponectin is inversely associated and free fatty acids (FFAs) are directly associated with incident coronary heart disease (CHD). Adiponectin tends to be reduced and FFAs elevated in type 2 diabetes. We investigated relationships of adiponectin and FFA and major adverse cardiovascular events (MACEs) and death in patients with acute coronary syndrome (ACS) and type 2 diabetes using data from the AleCardio trial, which compared the PPAR-α/γ agonist aleglitazar with placebo.

RESEARCH DESIGN AND METHODS: Using Cox regression adjusted for demographic, laboratory, and treatment variables, we determined associations of baseline adiponectin and FFAs, or the change in adiponectin and FFAs from baseline, with MACEs (cardiovascular death, myocardial infarction, or stroke) and death.

RESULTS: A twofold higher baseline adiponectin (n = 6,998) was directly associated with risk of MACEs (hazard ratio [HR] 1.17 [95% CI 1.08-1.27]) and death (HR 1.53 [95% CI 1.35-1.73]). A doubling of adiponectin from baseline to month 3 (n = 6,325) was also associated with risk of death (HR 1.20 [95% CI 1.03-1.41]). Baseline FFAs (n = 7,038), but not change in FFAs from baseline (n = 6,365), were directly associated with greater risk of MACEs and death. There were no interactions with study treatment.

CONCLUSIONS: In contrast to prior observational data for incident CHD, adiponectin is prospectively associated with MACEs and death in patients with type 2 diabetes and ACS, and an increase in adiponectin from baseline is directly related to death. These findings raise the possibility that adiponectin has different effects in patients with type 2 diabetes and ACS than in populations without prevalent cardiovascular disease. Consistent with prior data, FFAs are directly associated with adverse outcomes.

PMID: 29903845

14. J Am Coll Cardiol. 2018 Jun 19;71(24):2802-2810.

Cardiovascular Outcomes Reported in Hemodialysis Trials.

O'Lone E, Viecelli AK, Craig JC, Tong A, Sautenet B, Roy D, Herrington WG, Herzog CA, Jafar T, Jardine M), Krane V, Levin A, Malyszko J, Rocco MV, Strippoli G, Tonelli M, Wang AYM, Wanner C, Zannad F, Winkelmayer WC, Webster AC, Wheeler DC.

Patients on long-term hemodialysis are at very high risk for cardiovascular disease but are usually excluded from clinical trials conducted in the general population or in at-risk populations. There are no universally agreed cardiovascular outcomes for trials conducted specifically in the hemodialysis population. In this review, we highlight that trials reporting cardiovascular outcomes in hemodialysis patients are usually of short duration (median 3 to 6 months) and are small (59% of trials have <100 participants). Overall, the cardiovascular outcomes are very heterogeneous and may not reflect outcomes that are meaningful to patients and clinicians in supporting decision making, as they are often surrogates of uncertain clinical importance. Composite outcomes used in different trials rarely share the same components. In a field in which a single trial is often insufficiently powered to fully assess the clinical and economic impact of interventions, differences in outcome reporting across trials make the task of meta-analysis and interpretation of all the available evidence challenging. Core outcome sets are now being established across many specialties in health care to prevent these problems. Through the global Standardized Outcomes in Nephrology-Hemodialysis initiative, cardiovascular disease was identified as a critically important core domain to be reported in all trials in hemodialysis. Informed by the current state of reporting of cardiovascular outcomes, a core outcome measure for cardiovascular disease is currently being established with involvement of patients, caregivers, and health professionals. Consistent reporting of cardiovascular outcomes that are critically important to hemodialysis patients and clinicians will strengthen the evidence base to inform care in this very high-risk population.

PMID: 29903353

Eur Heart J Qual Care Clin Outcomes. 2018 Apr 20. [Epub ahead of print]

Influence of A History of Cancer on Long-Term Cardiovascular Outcomes After Coronary Stent Implantation (an Observation from Coronary Revascularization Demonstrating Outcome Study-Kyoto Registry Cohort-2).

Nakatsuma K, Shiomi H, Morimoto T, Watanabe H, Nakagawa Y, Furukawa Y, Kadota K, Ando K, Ono K, Shizuta S, Kimura T; CREDO-Kyoto PCI/CABG Registry Cohort-2 investigators.

Aims: To evaluate the influence of a history of cancer on clinical outcomes in coronary artery disease (CAD) patients who underwent percutaneous coronary intervention (PCI).
Methods and Results: In the CREDO-Kyoto PCI/coronary bypass grafting (CABG) Registry Cohort-2, there were 12,180 CAD patients who received PCI with stents. There were 1109 patients with a history of cancer (cancer group), and 11,071 patients without cancer (non-cancer group). The cumulative 5-year incidences of cardiac death and heart failure (HF) hospitalization were significantly higher in the cancer group than in the non-cancer group (12.4% versus 7.5%, P<0.001, and 12.1% versus 7.6%, P<0.001, respectively). Even after adjusting for confounders, the excess risk of the cancer group relative to non-cancer group for cardiac death and HF hospitalization remained significant (HR: 1.27, 95% CI: 1.05-1.53, P=0.02, and HR: 1.39, 95%CI: 1.13 to 1.68, P=0.002, respectively). Also, the cancer group had a trend toward higher adjusted risk for definite or probable stent thrombosis as compared with the non-cancer group (HR: 1.49, 95%CI: 0.99 to 2.16, P=0.055). The cancer group had significantly higher adjusted risk for all-cause death, non-cardiac death, major bleeding, and non-CABG surgery than the non-cancer group, while the risks for myocardial infarction and stroke were neutral between the 2 groups.
Conclusion: Patients with a history of cancer at the time of PCI had increased risk for cardiac events such as cardiac death and HF hospitalization as well as non-cardiac events such as non-cardiac death, major bleeding, and non-CABG surgery.

PMID: 29897437

Thyroid. 2018 Jun 8. [Epub ahead of print]

Cardiovascular morbidity and mortality after treatment of hyperthyroidism with either radioactive iodine or thyroidectomy.

Ryodi E, Metso S, Huhtala H, Välimäki M, Auvinen A, Jaatinen P.

BACKGROUND Hyperthyroid patients remain at an increased risk of cardiovascular diseases (CVDs) after restoring euthyroidism. The impact of the different treatment modalities of hyperthyroidism on future CVD risk remains unclear. The aim of this paper is to assess cardiovascular morbidity and mortality in hyperthyroidism before and after the treatment, and to compare the effects of two different treatment modalities, radioactive iodine (RAI) and thyroid surgery.

METHODS A comparative cohort study was conducted among 6,148 hyperthyroid patients treated either with RAI or thyroidectomy, and 18,432 age- and gender-matched controls. Firstly, hospitalizations due to CVDs prior to the treatment were analyzed. Secondly, the hazard ratios (HR) for any new hospitalization and mortality due to CVDs after the treatment were estimated among all the hyperthyroid patients compared to the age- and gender-matched controls and also in the RAI-treated patients compared to the thyroidectomy-treated patients. The results were adjusted for prevalent CVDs at the time of treatment.

RESULTS Before the treatment of hyperthyroidism, hospitalizations due to all CVDs were more common in the hyperthyroid patients compared to the controls (OR 1.61, 95% CI 1.49-1.73). During the post-treatment follow-up, hospitalizations due to CVDs remained more frequent among the patients (HR 1.15, 95% CI 1.09-1.21), but there was no difference in CVD mortality (HR 0.93, 95% CI 0.84-1.03). Compared to the patients treated with thyroidectomy, the RAI-treated patients had a higher risk of hospitalization due to all CVDs (HR 1.17), and atrial fibrillation (HR 1.28), as well as a higher CVD mortality (HR 2.56). Yet, treatment with RAI resulting in hypothyroidism was not associated with increased CVD morbidity compared with thyroidectomy.

CONCLUSIONS Hyperthyroidism increases the risk of CVD-related hospitalization, and the risk is sustained for up to two decades after treatment with RAI or surgery. Hyperthyroid patients treated with RAI remain at a higher CVD risk compared to patients treated with thyroidectomy. Hypothyroidism during the follow-up, however, predicts better cardiovascular outcome.

PMID: 29882483

Eur Heart J. 2018 Jun 4.. [Epub ahead of print]

Achieved diastolic blood pressure and pulse pressure at target systolic blood pressure (120-140 mmHg) and cardiovascular outcomes in high-risk patients: results from ONTARGET and TRANSCEND trials.

Böhm M, Schumacher H, Teo KK, Lonn E, Mahfoud F, Mann JFE, Mancia G, Redon J, Schmieder R, Weber M, Sliwa K, Williams B, Yusuf S.

Aims: Current guidelines of hypertensive management recommend upper limits for systolic (SBP) and diastolic blood pressure (DBP). J-curve associations of BP with risk exist for some outcomes suggesting that lower limits of DBP goals may also apply. We examined the association between mean attained DBP and cardiovascular (CV) outcomes in patients who achieved an on-treatment SBP in the range of 120 to <140 mmHg in the Ongoing Telmisartan Alone and in Combination with Ramipril Global Endpoint Trial (ONTARGET) and Telmisartan Randomized AssessmeNt Study in ACE iNtolerant participants with cardiovascular Disease (TRANSCEND) trials on patients with high CV risk. This SBP range was associated with the lowest CV risk.

Methods: We analysed the outcome data from patients age 55 years or older with CV disease from the ONTARGET and TRANSCEND trials that randomized high-risk patients to ramipril, telmisartan, and the combination. In patients with controlled SBP (on-treatment 120 to <140 mmHg), the composite outcome of CV death, myocardial infarction, stroke and hospital admission for heart failure, the components thereof, and all-cause mortality were analysed according to mean on-treatment DBP as categorical (<70, 70 to <80, 80 to <90, and ≥90 mmHg) and continuous variable as well as the change of DBP according to baseline DBP. Pulse pressure (PP) was related to outcomes as a continuous variable.

Results: In 16 099 of 31 546 patients, mean achieved SBP was 120 to <140 mmHg. The nominally lowest risk for all outcomes was observed at an achieved DBP of 70 to <80 mmHg. A higher achieved DBP was associated with a higher risk for the outcomes of stroke and of hospitalization for heart failure (≥80 mmHg) and myocardial infarction (≥90 mmHg). A lower achieved DBP (<70 mmHg) was associated with a higher risk for the primary outcome [hazard ratio (HR) 1.29, 95% confidence interval (95% CI) 1.15-1.45; P < 0.0001], myocardial infarction HR 1.54 (95% CI 1.26-1.88, P < 0.0001) and hospitalization for heart failure HR 1.81 (95% CI 1.47-2.24, P < 0.0001) and all-cause death (HR 1.19, 95% CI 1.04-1.35; P < 0.0001) while there was no signal for stroke and CV death compared to DBP 70 to <80 mmHg. A decrease of DBP was associated with lower risk when baseline DBP was >80 mmHg. The associations to outcomes were similar when patients were divided to SBP 120 to <130 mmHg or 130 to <140 mmHg for DBP or PP.

Conclusion: Compared to a DBP of 70 to <80 mmHg, lower and higher DBP was associated with a higher risk in patients achieving a SBP of 120 to <140 mmHg. Associations of DBP and PP to risk were similar notably at controlled SBP. These data suggest at optimal achieved SBP, risk is still defined by low or high DBP. These findings support guidelines which take DBP at optimal SBP control into consideration.

PMID: 29873709

Cardiovasc Diabetol. 2018 Jun 5;17(1):79.

Comparative cardiovascular outcomes in the era of novel anti-diabetic agents: a comprehensive network meta-analysis of 166,371 participants from 170 randomized controlled trials.

Zhuang XD, He X, Yang DY, Guo Y, He JG, Xiao HP, Liao XX.

BACKGROUND: Cardiovascular (CV) safety of one anti-diabetic medication over another remains partially delineated. We sought to assess the comparative effect on CV outcomes among novel anti-diabetic agents.
METHODS: This study was registered with the International Prospective Register of Systematic Reviews (CRD 42016042063). MEDLINE, EMBASE, and Cochrane Library Central Register of Controlled Trials were searched between Jan 1, 1980, and June 30, 2016. Randomized controlled trials comparing anti-diabetic drugs with other comparators in adults with type 2 diabetes were included. We used network meta-analysis to obtain estimates for the outcomes of interests. In addition, post hoc correlation analysis of severe hypoglycemia and primary outcome as per ranking order was conducted. Outcomes were major adverse cardiovascular events (MACE) and all-cause mortality.
RESULTS: A total of 170 trials (166,371 participants) were included. By class and by individual, sulfonylureas (SU) ranked last. Therefore, with SU as reference, categorically sodium-glucose co-transporter 2 inhibitor (SGLT2i), insulin (INS), glucagon-like peptide-1 receptor agonist, and dipeptidyl peptidase 4 inhibitor were significantly superior in term of MACE; as were SGLT2i and INS in term of all-cause mortality. Moreover, ranking orders of MACE and all-cause mortality were both positively correlated with that of severe hypoglycemia risk (by Individual: $R2=0.3178$, $P=0.018$; by class: $R2=0.2574$, $P=0.038$).
CONCLUSIONS: Novel anti-diabetic agents possess favorable CV safety profile, despite small but robust differences between individuals. In addition, increase in CV risk was again shown to be partly attributable to a concomitant increase in the risk of severe hypoglycemia, for which SU performed the worst.

PMCID: PMC5989345
PMID: 29871636

Expert Opin Drug Saf. 2018 Jul;17(7):697-708.

Cardiovascular outcomes of patients with rheumatoid arthritis prescribed disease modifying anti-rheumatic drugs: a review.

Giollo A, Bissell LA, Buch MH.

INTRODUCTION: Rheumatoid arthritis (RA) is associated with a heightened risk of cardiovascular disease (CVD), with both traditional CV risk factors and inflammation contributing to this risk. Areas covered: This review highlights the burden of CVD in RA and associated traditional CV risk factors, including the complexity of dyslipidemia in RA and the so-called 'lipid paradox.' Furthermore, the recognized RA-disease-specific factors associated with higher risk of CVD and the role of systemic inflammation in the pathogenesis of CVD in RA will be addressed. With the advent of biologic and targeted synthetic therapies in the treatment of RA, the effect of conventional and newer generation disease modifying anti-rheumatic therapies (DMARDs) on CV risk and associated risk factors will also be discussed. Expert opinion: Identifying the RA phenotype at greatest risk of CVD, understanding the interplay of increased traditional risk factors, common inflammatory processes and RA-specific factors, and personalized use of DMARDs according to disease phenotype and comorbidity to reduce this risk are key areas for future research.

PMID: 29871535

J Am Coll Cardiol. 2018 Jun 5;71(22):2497-2506.

SGLT-2 Inhibitors and Cardiovascular Risk: An Analysis of CVD-REAL.

Cavender MA, Norhammar A, Birkeland KI, Jørgensen ME, Wilding JP, Khunti K, Fu AZ, Bodegård J, Blak BT, Wittbrodt E, Thuresson M, Fenici P, Hammar N, Kosiborod M; CVD-REAL Investigators and Study Group.

BACKGROUND: Prior studies found patients treated with sodium-glucose co-transporter-2 inhibitors (SGLT-2i) had lower rates of death and heart failure (HF). Whether the benefits of SGLT-2i vary based upon the presence of cardiovascular disease (CVD) is unknown.
OBJECTIVES: This study sought to determine the association between initiation of SGLT-2i therapy and HF or death in patients with and without CVD.
METHODS: The CVD-REAL (Comparative Effectiveness of Cardiovascular Outcomes in New Users of SGLT-2 Inhibitors) study was a multinational, observational study in which adults with type 2 diabetes were identified. Patients prescribed an SGLT-2i or other glucose-lowering drugs (GLDs) were matched based on a propensity score for initiation of an SGLT-2i. Hazard ratios (HRs) for the risk of death, HF, and HF or death in patients with and without established CVD were estimated for each country and pooled.
RESULTS: After propensity score matching, 153,078 patients were included in each group. At baseline, 13% had established CVD. Compared with therapy using other GLDs, initiation of an SGLT-2i was associated with lower risk of death in patients with and without CVD (HR: 0.56; 95% confidence interval [CI]: 0.44 to 0.70; and HR: 0.56; 95% CI: 0.50 to 0.63, respectively). There were also associations between SGLT-2i and lower risk of HF (HR: 0.72; 95% CI: 0.63 to 0.82; and HR: 0.61; 95% CI: 0.48 to 0.78, respectively) and the composite of HF or death (HR: 0.63; 95% CI: 0.57 to 0.70; and HR: 0.56; 95% CI: 0.50 to 0.62, respectively) observed in patients with and without established CVD.
CONCLUSIONS: In this large, multinational, observational study, initiation of SGLT-2i was associated with lower risk of death and HF regardless of pre-existing CVD. Ongoing clinical trials will provide further evidence regarding the benefit of SGLT-2i in patients without established CVD. (Comparative Effectiveness of Cardiovascular Outcomes in New Users of SGLT-2 Inhibitors [CVD-REAL]; NCT02993614).

PMID: 29852973

Diabetes Care. 2018 Jul;41(7):1510-1515

Serial Measurement of Natriuretic Peptides and Cardiovascular Outcomes in Patients With Type 2 Diabetes in the EXAMINE Trial.

Jarolim P, White WB, Cannon CP, Gao Q, Morrow DA.

OBJECTIVE: Patients with type 2 diabetes are at increased risk of developing heart failure (HF). Enhanced recognition of patients at risk for HF would help guide therapeutic decisions.
RESEARCH DESIGN AND METHODS: We investigated the prognostic implications of changes in N-terminal B-type natriuretic peptide (NT-proBNP) concentration in patients with type 2 diabetes and ischemic heart disease who were enrolled in the Examination of Cardiovascular Outcomes with Alogliptin versus Standard of Care (EXAMINE) trial, a phase 3b trial of alogliptin, a dipeptidyl peptidase 4 (DPP-4) inhibitor. Patients with type 2 diabetes and a recent acute coronary syndrome event were eligible. NT-proBNP was measured at baseline and 6 months. Cardiovascular (CV) death or hospitalization for HF was the end point of principal interest for this analysis.
RESULTS: We observed a strong graded relationship between increasing baseline and 6-month NT-proBNP concentration and the incidence of major CV events ($P < 0.001$). After adjusting for potential confounders, NT-proBNP at baseline was independently associated with the development of major CV events, in particular hospitalization for HF. Patients who had persistently high NT-proBNP ($P < 0.001$) or developed high NT-proBNP at 6 months ($P < 0.001$) were at a significantly higher risk for CV death/HF than those in whom NT-proBNP remained low at both time points or who had a high NT-proBNP value at baseline that subsequently declined to the low category. Absolute changes in NT-proBNP by 6 months were also strongly associated with subsequent outcomes. Treatment with a DPP-4 inhibitor did not meaningfully alter NT-proBNP concentrations ($P = 0.20$).
CONCLUSIONS: Serial monitoring of NT-proBNP in patients with type 2 diabetes and ischemic heart disease may be useful for identifying patients at highest risk for HF.

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Alcohol intake in relation to non-fatal and fatal coronary heart disease and stroke: EPIC-CVD case-cohort study.

Ricci C et al.

OBJECTIVE: To investigate the association between alcohol consumption (at baseline and over lifetime) and non-fatal and fatal coronary heart disease (CHD) and stroke.
DESIGN: Multicentre case-cohort study.
SETTING: A study of cardiovascular disease (CVD) determinants within the European Prospective Investigation into Cancer and nutrition cohort (EPIC-CVD) from eight European countries.
PARTICIPANTS: 32549 participants without baseline CVD, comprised of incident CVD cases and a subcohort for comparison.
MAIN OUTCOME MEASURES: Non-fatal and fatal CHD and stroke (including ischaemic and haemorrhagic stroke).
RESULTS: There were 9307 non-fatal CHD events, 1699 fatal CHD, 5855 non-fatal stroke, and 733 fatal stroke. Baseline alcohol intake was inversely associated with non-fatal CHD, with a hazard ratio of 0.94 (95% confidence interval 0.92 to 0.96) per 12 g/day higher intake. There was a J shaped association between baseline alcohol intake and risk of fatal CHD. The hazard ratios were 0.83 (0.70 to 0.98), 0.65 (0.53 to 0.81), and 0.82 (0.65 to 1.03) for categories 5.0-14.9 g/day, 15.0-29.9 g/day, and 30.0-59.9 g/day of total alcohol intake, respectively, compared with 0.1-4.9 g/day. In contrast, hazard ratios for non-fatal and fatal stroke risk were 1.04 (1.02 to 1.07), and 1.05 (0.98 to 1.13) per 12 g/day increase in baseline alcohol intake, respectively, including broadly similar findings for ischaemic and haemorrhagic stroke. Associations with cardiovascular outcomes were broadly similar with average lifetime alcohol consumption as for baseline alcohol intake, and across the eight countries studied. There was no strong evidence for interactions of alcohol consumption with smoking status on the risk of CVD events.
CONCLUSIONS: Alcohol intake was inversely associated with non-fatal CHD risk but positively associated with the risk of different stroke subtypes. This highlights the opposing associations of alcohol intake with different CVD types and strengthens the evidence for policies to reduce alcohol consumption.

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Antihyperglycemic Medications and Impact on Cardiovascular Outcomes: A Review of Current Evidence.

Gale SE, Poon JL, Watson K.

Patients with type 2 diabetes mellitus (DM) are known to be at an increased risk for macrovascular complications, and cardiovascular disease (CVD) is one of the greatest drivers of morbidity and mortality in this patient population. Over the past decade, the number of treatment options for type 2 DM has increased. In 2008, the United States Food and Drug Administration mandated an evaluation of cardiovascular (CV) outcomes associated with antihyperglycemic agents. Since that time, the CV risk-benefit profile of many antihyperglycemic treatment modalities have been evaluated; however, results have remained inconsistent. This article will review the literature on the use of pharmacologic therapies in patients with type 2 DM and associated CVD risk, as well as provide recommendations for appropriate treatment selection in this population. Current evidence has demonstrated CV benefits with metformin, select glucagon-like peptide-1 receptor agonists (liraglutide), and sodium-glucose co-transporter 2 inhibitors (canagliflozin and empagliflozin).

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Cardiovascular Outcome and Mortality in Patients Undergoing Endovascular Treatment for Symptomatic Peripheral Artery Disease - Short-Term Results of the Toma-Code Registry.

Higashitani M, Uemura Y, Mizuno A, Utsunomiya M, Yamaguchi T, Matsui A, Ozaki S, Tobita K, Tosaka A, Oida A, Suzuki K, Kodama T, Jujo K, Doijiri T, Takahashi Y, Matsuno S, Kaneko N, Moriguchi A, Kishi S, Anzai H; Toma-Code Registry Investigators.

BACKGROUND: The present study was performed to clarify whether the preoperative clinical symptoms for endovascular therapy (EVT) can predict post-EVT death and cardiovascular prognosis in Japanese patients with peripheral artery disease (PAD), including acute disease.
Methods and Results:The TOkyo taMA peripheral vascular intervention research COmraDE (Toma-Code) Registry is a Japanese prospective cohort of 2,321 consecutive patients with PAD treated with EVT, in 34 hospitals in the Kanto and Kōshin'etsu regions, from August 2014 to August 2016. In total, 2,173 symptomatic patients were followed up for a median of 10.4 months, including 1,370 with claudication, 719 with critical limb ischemia (CLI), and 84 with acute limb ischemia (ALI) for EVT. The all-cause death rates per 100 person-years for claudication, CLI and ALI were 3.5, 26.2, and 24.5, respectively. Similarly, major adverse cardiac and cerebrovascular events (MACCE) rates per 100 person-years for claudication, CLI, ALI, and others were 5.2, 31.2, and 29.7, respectively. After adjusting for the predictors of all-cause death and MACCE, namely, age, body mass index <18, diabetes mellitus, dialysis, cerebrovascular disease, and low left ventricular ejection fraction, it was determined that the preoperative indication for EVT was strongly associated with all-cause death and MACCE.
CONCLUSIONS: The preoperative clinical symptoms for EVT can predict the prognosis in patients with PAD undergoing EVT.

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Socioeconomic Status and Cardiovascular Outcomes: Challenges and Interventions.

Schultz WM, Kelli HM, Lisko JC, Varghese T, Shen J, Sandesara P, Quyyumi AA, Taylor HA, Gulati M, Harold JG, Mieres JH(6), Ferdinand KC(7), Mensah GA(8), Sperling LS(9).

Socioeconomic status (SES) has a measurable and significant effect on cardiovascular health. Biological, behavioral, and psychosocial risk factors prevalent in disadvantaged individuals accentuate the link between SES and cardiovascular disease (CVD). Four measures have been consistently associated with CVD in high-income countries: income level, educational attainment, employment status, and neighborhood socioeconomic factors. In addition, disparities based on sex have been shown in several studies. Interventions targeting patients with low SES have predominantly focused on modification of traditional CVD risk factors. Promising approaches are emerging that can be implemented on an individual, community, or population basis to reduce disparities in outcomes. Structured physical activity has demonstrated effectiveness in low-SES populations, and geomapping may be used to identify targets for large-scale programs. Task shifting, the redistribution of healthcare management from physician to nonphysician providers in an effort to improve access to health care, may have a role in select areas. Integration of SES into the traditional CVD risk prediction models may allow improved management of individuals with high risk, but cultural and regional differences in SES make generalized implementation challenging. Future research is required to better understand the underlying mechanisms of CVD risk that affect individuals of low SES and to determine effective interventions for patients with high risk. We review the current state of knowledge on the impact of SES on the incidence, treatment, and outcomes of CVD in high-income societies and suggest future research directions aimed at the elimination of these adverse factors, and the integration of measures of SES into the customization of cardiovascular treatment.

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Cardiovascular outcome in type 2 diabetes and atrial fibrillation.

Costard-Jäckle A, Tschöpe D, Meinertz T.

Diabetes is an independent risk factor for atrial fibrillation (AF). Frequently, it is part of the metabolic syndrome cluster, which includes obesity and hypertension that are independently associated with AF. The risk appears to be higher with longer duration of diabetes and inadequate glycemic control. Patients with diabetes and AF have a substantially increased risk of death and serious cardiovascular complications compared with those in sinus rhythm. Conversely, good metabolic control appears to be associated with maintenance of rhythm after successful therapeutic conversion to sinus rhythm by catheter ablation or electrical cardioconversion of AF. AF puts patients with type 2 diabetes at a high risk of cardiovascular complications and death, which could be successfully addressed by new classes of antidiabetic agents such as incretin analogues or sglt-2 inhibitors. Thus, a diagnostic strategy that addresses the increased risk for AF is urgently recommended, in addition to diabetes monitoring in routine outpatient practice. In order to prevent thromboembolic complications, which frequently determine the prognosis for this patient population, appropriate anticoagulation remains the mainstay of therapy, whereas the prognostic value of reinstalling sinus rhythm awaits further evidence.

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