READINGS

A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO CARDIOVASCULAR DISORDERS

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Some available as free full-text and some requiring payment.
Selection of readings made by A/P Goh Lee Gan

READING 1. SCREENING FOR CORONARY ARTERY DISEASE IN ASYMPTOMATIC INDIVIDUALS

Degrell P, Sorbets E, Feldman LJ, Steg PG, Ducrocq G. Screening for coronary artery disease in asymptomatic individuals: Why and how? Arch Cardiovasc Dis. 2015 Dec;108(12):675-82. Review. PubMed PMID: 26596251.

URL: http://www.sciencedirect.com/science/article/pii/S1875213615001862 (payment required)

ABSTRACT

Cardiovascular disease is still the main cause of death in the world, and coronary artery disease is the largest contributor. Screening asymptomatic individuals for coronary artery disease in view of preventive treatment is therefore of crucial interest. Apart from established risk scores based on traditional risk factors such as the Framingham or SCORE risk scores, new biomarkers and imaging methods have emerged (high-sensitivity C-reactive protein, lipoprotein-associated phospholipase A2 and secretory phospholipase A2, coronary artery calcium score, carotid intima-media thickness and ankle-brachial index). Their added value on top of the classic risk scores varies considerably and the most convincing evidence exists for coronary artery calcium score in intermediate-risk asymptomatic individuals. PMID: 26596251 [PubMed — in process]

READING 2. COMPARISON OF APPLICATION OF DIFFERENT METHODS TO ESTIMATE LIFETIME CARDIOVASCULAR RISK

Brotons C, Calvo-Bonacho E, Moral I, Puig M, Garcia-Margallo MT, Cortés-Arcas MV, et al. Comparison of application of different methods to estimate lifetime cardiovascular risk. Eur J Prev Cardiol. 2016 Apr;23(6):564-71. PubMed PMID: 25827686.

URL http://cpr.sagepub.com/cgi/pmidlookup?view=long&pmid=25827686 — payment required

ABSTRACT

BACKGROUND: Recent guidelines recommend assessment of lifetime cardiovascular risk on the basis of traditional risk factors in adults who are not at high short-term risk. The aim of this study is to determine the implications of estimating the lifetime cardiovascular risk in individuals in a large occupational cohort in Spain.

DESIGN: National cross-sectional study in an occupational cohort with in-person interviews, including laboratory tests.

METHODS: Volunteer workers who were examined between January 2011 and December 2011 were included. A total of 580,236 workers were eligible during this year and 259,834 were examined (participation rate of 44.7%). Short-term (10-year) and lifetime cardiovascular risk were estimated using the American College of Cardiology (ACC) and the American Heart Association (AHA) tool and the QRISK2 and QRISK.

RESULTS: Sixty-eight percent were male, mean age was 39 years, with an age range of 16 to 75 years. Total number of individuals included in this study was 258,676. The percentage of patients at high short-term risk was 6.85 percent (95% confidence interval (CI) 6.75-6.95 percent and 20.83 percent (95% CI 20.60%-21.07%) with the QRISK2, and the ACC/AHA risk equations, respectively. Of the percentage of patients classified as not at high risk with the different tools 1.61 percent (95% CI 1.55%-1.66%) were high lifetime risk on QRISK, and 27.41 percent (95% CI 27.11%-27.70%) on ACC/AHA risk.

CONCLUSIONS: Application of lifetime cardiovascular risk engages greater numbers of individuals at high risk with substantial differences between the different methods available. These differences can have important clinical implications

specifically in the percentage of candidates for lifestyle changes and eventually lipid-lowering drugs. PMID: 25827686 [PubMed — in process]

READING 3. IMPROVING SECONDARY PREVENTION OF CORONARY HEART DISEASE

Gong Y, Yang F, Hong T, Huo Y. Using a standardized follow-up program to improve coronary heart disease secondary prevention. Anatol J Cardiol. 2016 Feb;16(2):84-91. PubMed PMID: 26467366.

URL: http://www.journalagent.com/anatoljcardiol/pdfs/AJC-47966-ORIGINAL_INVESTIGATION-HONG.pdf — free full text

ABSTRACT

OBJECTIVE: To reveal the current status and effectiveness of a standardised follow-up of the secondary prevention of coronary heart disease (CHD) at Peking University First Hospital.

METHODS: The study group comprised 496 patients diagnosed with CHD between January 1, 2007 and December 31, 2009 after a standardised follow-up program began. A group of 300 patients with CHD diagnosed between January 1, 2004 and December 31, 2004 was evaluated as the control group. The study group participants were followed-up every 3 months for 1 year in the outpatient department and were interviewed by telephone between November 2012 and January 2013. Data on the control of risk-factors, medical therapy, and clinical events were collected.

RESULTS: At discharge, 75.4 percent of the study group patients were non-smokers, 51.4 percent exercised regularly, 42.4 percent were overweight, 56.7 percent had blood pressure <140/90 mm Hg (<130/80 in those with diabetes mellitus), 51 percent had serum low-density-lipoprotein cholesterol <2.60 mmol/L, and 64.2 percent had fasting plasma glucose <6.11 mmol/L. Antiplatelet medication was used by 99.4 percent of the study-group patients, angiotensin-converting enzyme inhibitors/angiotensin-receptor blockers by 64.5 percent, beta-blockers by 79.1 percent, and statins by 94.3 percent. Major adverse cardiac events, the primary clinical outcome, occurred in 22.7 percent of the study group patients. The proportions of non-smokers (82.2% vs. 73.7%, p=0.014), control of serum lipids (84.4% vs. 45.6%, p<0.001), and use of statins (92.5% vs. 54.3%, p<0.001) at the end of follow-up were significantly greater in the study group than those in the control group.

CONCLUSION: Although some patients with CHD were still not achieving the goals of lifestyle change, control of risk factors, and medication therapy, standardised follow-up helped improve and standardise CHD secondary prevention. PubMed PMID: 26467366

READING 4. MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS

Conn VS, Ruppar TM, Chase JA, Enriquez M, Cooper PS. Interventions to improve medication adherence in hypertensive patients: systematic review and meta-analysis. Curr Hypertens Rep. 2015 Dec;17(12):94. Review. PubMed PMID: 26560139.

URL: http://link.springer.com/article/10.1007%2Fs11906-015-0606-5 — payment required

ABSTRACT

This systematic review applied meta-analytic procedures to synthesise medication adherence interventions that focus on adults with hypertension. Comprehensive searching located trials with medication adherence behavior outcomes. Study sample, design, intervention characteristics, and outcomes were coded. Random-effects models were used in calculating standardised mean difference effect sizes. Moderator analyses were conducted using meta-analytic analogues of ANOVA and regression to explore associations between effect sizes and sample, design, and intervention characteristics. Effect sizes were calculated for 112 eligible treatment-vs.-control-group outcome comparisons of 34,272 subjects. The overall standardised mean difference effect size between treatment and control subjects was 0.300. Exploratory moderator analyses revealed interventions were most effective among female, older, and moderate- or high-income participants. The most promising intervention components were those linking adherence behavior with habits, giving adherence feedback to patients, self-monitoring of blood pressure, using pill boxes and other special packaging, and motivational interviewing. The most effective interventions employed multiple components and were delivered over many days. Future research should strive for minimaising risks of bias common in this literature, especially avoiding self-report adherence measures. PubMed PMID: 26560139

READING 5. DIETARY CHOLESTEROL

Williams KA Sr, Krause AJ, Shearer S, Devries S. The 2015 Dietary Guidelines Advisory Committee report concerning dietary cholesterol. Am J Cardiol. 2015 Nov 1;116(9):1479-80. PubMed PMID: 26341187.

URL: http://www.sciencedirect.com/science/article/pii/S0002914915017828 — payment required

ABSTRACT

The most recent 2015 Dietary Guidelines Advisory Committee report indicated that “cholesterol is not considered a nutrient of concern for overconsumption." However, this statement may be too general as it does not acknowledge conflicting findings in literature regarding cardiovascular risk in certain populations. Current research suggests that dietary cholesterol may increase a subject's risk of developing diabetes, increases a diabetic patient's risk of cardiovascular disease, and may worsen coronary risk factors in subjects who are "hyper-responders" to dietary cholesterol. In conclusion, we suggest that a more cautious approach to dietary cholesterol intake is warranted, especially in high-risk populations.
PMID: 26341187 [PubMed - indexed for MEDLINE]

READING 6. DYSLIPIDEMIA MANAGEMENT IN PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE

Hendrani AD, Adesiyun T, Quispe R, Jones SR, Stone NJ, Blumenthal RS, et al. Dyslipidemia management in primary prevention of cardiovascular disease: current guidelines and strategies. World J Cardiol. 2016 Feb 26;8(2):201-10. Review. PubMed PMID: 26981215; PubMed Central PMCID: PMC4766270.

URL: http://www-ncbi-nlm-nih-gov/pmc/articles/PMC4766270/ — free full text

ABSTRACT

Cardiovascular disease is the leading cause of death in the United States. In 2010, the Centers for Disease Control and Prevention estimated that $444 billion was spent on cardiovascular diseases alone, about $1 of every $6 spent on health care. As life expectancy continues to increase, this annual cost will also increase, making cost-effective primary prevention of cardiovascular disease highly desirable. Because of its role in development of atherosclerosis and clinical events, dyslipidaemia management is a high priority in cardiovascular prevention. Multiple major dyslipidemia guidelines have been published around the world recently, four of them by independent organisations in the United States alone. They share the goal of providing clinical guidance on optimal dyslipidaemia management, but guidelines differ in their emphasis on pharmacotherapy, stratification of groups, emphasis on lifestyle modification, and use of a fixed target or percentage reduction in low-density-lipoprotein cholesterol. This review summarises eight major guidelines for dyslipidaemia management and considers the basis for their recommendations. Our primary aim is to enhance understanding of dyslipidaemia management guidelines in patient care for primary prevention of future cardiovascular risk.

PMCID: PMC4766270 PMID: 26981215 [PubMed]

READING 7. PREVENTION OF CARDIOVASCULAR DISEASE IN TYPE 2 DIABETES MELLITUS

Fox CS, Golden SH, Anderson C, Bray GA, Burke LE, de Boer IH, et al. Update on prevention of cardiovascular disease in adults with Type 2 diabetes mellitus in light of recent evidence: a scientific statement from the american heart association and the American Diabetes Association. Circulation. 2015 Aug 25;132(8):691-718. PubMed PMID: 26246173.

URL: http://circ.ahajournals.org/content/132/8/691.long — free full text

ABSTRACT

Cardiovascular disease risk factor control as primary prevention in patients with type 2 diabetes mellitus has changed substantially in the past few years. The purpose of this scientific statement is to review the current literature and key clinical trials pertaining to blood pressure and blood-glucose control, cholesterol management, aspirin therapy, and lifestyle modification. We present a synthesis of the recent literature, new guidelines, and clinical targets, including screening for kidney and subclinical cardiovascular disease for the contemporary management of patients with type 2 diabetes mellitus.
 PMID: 26246173 [PubMed — indexed for MEDLINE]

READING 8. PREVENTION OF OBESITY

Cefalu WT, Bray GA, Home PD, Garvey WT, Klein S, Pi-Sunyer FX, et al. Advances in the science, treatment, and prevention of the disease of obesity: reflections from a diabetes care editors' expert forum. Diabetes Care. 2015 Aug;38(8):1567-82. Review. PubMed PMID: 26421334.

URL: http://care.diabetesjournals.org/lookup/pmid?view=long&pmid=26421334 — payment required

ABSTRACT

As obesity rates increase, so too do the risks of Type 2 diabetes, cardiovascular disease, and numerous other detrimental conditions. The prevalence of obesity in U.S. adults more than doubled between 1980 and 2010, from 15.0 to 36.1 percent. Although this trend may be leveling off, obesity and its individual, societal, and economic costs remain of grave concern. In June 2014, a Diabetes Care Editors' Expert Forum convened to review the state of obesity research and discuss the latest prevention initiatives and behavioral, medical, and surgical therapies. This article, an outgrowth of the forum, offers an expansive view of the obesity epidemic, beginning with a discussion of its root causes. Recent insights into the genetic and physiological factors that influence body weight are reviewed, as are the pathophysiology of obesity-related metabolic dysfunction and the concept of metabolically healthy obesity. The authors address the crucial question of how much weight loss is necessary to yield meaningful benefits. They describe the challenges of behavioral modification and predictors of its success. The effects of diabetes pharmacotherapies on body weight are reviewed, including potential weight-neutral combination therapies. The authors also summarise the evidence for safety and efficacy of pharmacotherapeutic and surgical obesity treatments. The article concludes with an impassioned call for researchers, clinicians, governmental agencies, health policymakers, and health-related industries to collectively embrace the urgent mandate to improve prevention and treatment and for society at large to acknowledge and manage obesity as a serious disease.
PMID: 26421334 [PubMed - indexed for MEDLINE]

READING 9. INTAKE OF SATURATED AND TRANS UNSATURATED FATTY ACIDS AND RISKS

de Souza RJ, Mente A, Maroleanu A, Cozma AI, Ha V, Kishibe T, et al. Intake of saturated and trans unsaturated fatty acids and risk of all cause mortality, cardiovascular disease, and type 2 diabetes: systematic review and meta-analysis of observational studies. BMJ. 2015 Aug 11;351:h3978. Review. PubMed PMID: 26268692; PubMed Central PMCID: PMC4532752.

URL http://www.bmj.com/content/351/bmj.h3978.long — free full text

ABSTRACT

Comment in
MMW Fortschr Med. 2015 Sep 24;157(16):40.
BMJ. 2015;351:h4671.

OBJECTIVE: To systematically review associations between intake of saturated fat and trans unsaturated fat and all cause mortality, cardiovascular disease (CVD) and associated mortality, coronary heart disease (CHD) and associated mortality, ischemic stroke, and Type 2 diabetes.
DESIGN: Systematic review and meta-analysis.
DATA SOURCES: Medline, Embase, Cochrane Central Registry of Controlled Trials, Evidence-Based Medicine Reviews, and CINAHL from inception to 1 May 2015, supplemented by bibliographies of retrieved articles and previous reviews.
ELIGIBILITY CRITERIA FOR SELECTING STUDIES: Observational studies reporting associations of saturated fat and/or trans unsaturated fat (total, industrially manufactured, or from ruminant animals) with all cause mortality, CHD/CVD mortality, total CHD, ischemic stroke, or type 2 diabetes.
DATA EXTRACTION AND SYNTHESIS: Two reviewers independently extracted data and assessed study risks of bias. Multivariable relative risks were pooled. Heterogeneity was assessed and quantified. Potential publication bias was assessed and subgroup analyses were undertaken. The GRADE approach was used to evaluate quality of evidence and certainty of conclusions.

RESULTS: For saturated fat, three to 12 prospective cohort studies for each association were pooled (five to 17 comparisons with 90,501-339,090 participants). Saturated fat intake was not associated with all cause mortality (relative risk 0.99, 95% confidence interval 0.91 to 1.09), CVD mortality (0.97, 0.84 to 1.12), total CHD (1.06, 0.95 to 1.17), ischaemic stroke (1.02, 0.90 to 1.15), or Type 2 diabetes (0.95, 0.88 to 1.03). There was no convincing lack of association between saturated fat and CHD mortality (1.15, 0.97 to 1.36; P=0.10). For trans fats, one to six prospective cohort studies for each association were pooled (two to seven comparisons with 12,942-230,135 participants). Total trans fat intake was associated with all cause mortality (1.34, 1.16 to 1.56), CHD mortality (1.28, 1.09 to 1.50), and total CHD (1.21, 1.10 to 1.33) but not ischaemic stroke (1.07, 0.88 to 1.28) or Type 2 diabetes (1.10, 0.95 to 1.27). Industrial, but not ruminant, trans fats were associated with CHD mortality (1.18 [1.04 to 1.33] v 1.01 [0.71 to 1.43]) and CHD (1.42 [1.05 to 1.92] v 0.93 [0.73 to 1.18]). Ruminant trans-palmitoleic acid was inversely associated with Type 2 diabetes (0.58, 0.46 to 0.74). The certainty of associations between saturated fat and all outcomes was "very low". The certainty of associations of trans fat with CHD outcomes was "moderate" and "very low" to "low" for other associations.
CONCLUSIONS: Saturated fats are not associated with all cause mortality, CVD, CHD, ischemic stroke, or Type 2 diabetes, but the evidence is heterogeneous with methodological limitations. Trans fats are associated with all cause mortality, total CHD, and CHD mortality, probably because of higher levels of intake of industrial trans fats than ruminant trans fats. Dietary guidelines must carefully consider the health effects of recommendations for alternative macronutrients to replace trans fats and saturated fats. PMCID: PMC4532752 PMID: 26268692 [PubMed - indexed for MEDLINE]

READING 10. PROTEIN IN WEIGHT LOSS AND MAINTENANCE

Leidy HJ, Clifton PM, Astrup A, Wycherley TP, Westerterp-Plantenga MS, Luscombe-Marsh ND, et al. The role of protein in weight loss and maintenance. Am J Clin Nutr. 2015 Apr 29. PubMed PMID: 25926512.

URL: http://ajcn.nutrition.org/content/101/6/1320S.long — free full text

ABSTRACT

Over the past 20 years, higher-protein diets have been touted as a successful strategy to prevent or treat obesity through improvements in body weight management. These improvements are thought to be due, in part, to modulations in energy metabolism, appetite, and energy intake. Recent evidence also supports higher-protein diets for improvements in cardiometabolic risk factors. This article provides an overview of the literature that explores the mechanisms of action after acute protein consumption and the clinical health outcomes after consumption of long-term, higher-protein diets. Several meta-analyses of shorter-term, tightly controlled feeding studies showed greater weight loss, fat-mass loss, and preservation of lean mass after higher-protein energy-restriction diets than after lower-protein energy-restriction diets. Reductions in triglycerides, blood pressure, and waist circumference were also reported. In addition, a review of the acute feeding trials confirms a modest satiety effect, including greater perceived fullness and elevated satiety hormones after higher-protein meals but does not support an effect on energy intake at the next eating occasion. Although shorter-term, tightly controlled feeding studies consistently identified benefits with increased protein consumption, longer-term studies produced limited and conflicting findings; nevertheless, a recent meta-analysis showed persistent benefits of a higher-protein weight-loss diet on body weight and fat mass. Dietary compliance appears to be the primary contributor to the discrepant findings because improvements in weight management were detected in those who adhered to the prescribed higher-protein regimen, whereas those who did not adhere to the diet had no marked improvements. Collectively, these data suggest that higher-protein diets that contain between 1.2 and 1.6 g protein • kg(-1) • d(-1) and potentially include meal-specific protein quantities of at least 25-30 g protein/meal provide improvements in appetite, body weight management, cardiometabolic risk factors, or all of these health outcomes. However, further strategies to increase dietary compliance with long-term dietary interventions are warranted. ©2015 American Society for Nutrition. PubMed PMID: 25926512