ISSN 2181-3187

CARDIOVASCULAR SYSTEM .

Karimova Gulandom

Hojiyeva Zilola

Anatotion: The cardiovascular system consists of the heart and blood vessels.[1] There is a wide array of problems that may arise within the cardiovascular system, for example, endocarditis, rheumatic heart disease, abnormalities in the conduction system, among others, cardiovascular disease (CVD) or heart disease refer to the following 4 entities that are the focus of this article. Coronary artery disease (CAD): Sometimes referred to as Coronary Heart Disease (CHD), results from decreased myocardial perfusion that causes angina, myocardial infarction (MI), and/or heart failure.

Key word : cardiovascular , heart , blood vessels , coronary , arterial disease.

Introduction

The cardiovascular system consists of the heart and blood vessels.[1] There is a wide array of problems that may arise within the cardiovascular system, for example, endocarditis, rheumatic heart disease, abnormalities in the conduction system, among others, cardiovascular disease (CVD) or heart disease refer to the following 4 entities that are the focus of this article. Coronary artery disease (CAD): Sometimes referred to as Coronary Heart Disease (CHD), results from decreased myocardial perfusion that causes angina, myocardial infarction (MI), and/or heart failure. It accounts for one-third to one-half of the cases of CVD. Cerebrovascular disease (CVD): Including stroke and transient ischemic attack (TIA) Peripheral artery disease (PAD): Particularly arterial disease involving the limbs that may result in claudicationAortic atherosclerosis: Including thoracic and abdominal aneurysms

Etiology

ISSN 2181-3187

Although CVD may directly arise from different etiologies such as emboli in a patient with atrial fibrillation resulting in ischemic stroke, rheumatic fever causing valvular heart disease, among others, addressing risks factors associated to the development of atherosclerosis is most important because it is a common denominator in the pathophysiology of CVD. The industrialization of the economy with a resultant shift from physically demanding to sedentary jobs, along with the current consumerism and technology-driven culture that is related to longer work hours, longer commutes, and less leisure time for recreational activities, may explain the significant and steady increase in the rates of CVD during the last few decades. Specifically, physical inactivity, intake of a high-calorie diet, saturated fats, and sugars are associated with the development of atherosclerosis and other metabolic disturbances like metabolic syndrome, diabetes mellitus, and hypertension that are highly prevalent in people with CVD. According to the INTERHEART study that included subjects from 52 countries, including high, middle, and low-income countries, 9 modifiable risks factors accounted for 90% of the risk of having a first MI: smoking, dyslipidemia, hypertension, diabetes, abdominal obesity, psychosocial factors, consumption of fruits and vegetables, regular alcohol consumption, and physical inactivity. It is important to mention that in this study 36% of the population-attributable risk of MI was accounted to smoking.Other large cohort studies like the Framingham Heart Study[7] and the Third National Health and Nutrition Examination Survey (NHANES III)[5] have also found a strong association and predictive value of dyslipidemia, high blood pressure, smoking, and glucose intolerance. Sixty percent to 90% of CHD events occurred in subjects with at least one risk factor. These findings have been translated into health promotion programs by the American Heart Association with emphasis on seven recommendations to decrease the risk of CVD: avoiding smoking, being physically active, eating healthy, and keeping normal blood pressure, body weight, glucose, and cholesterol levels.[8][9]

On the other hand, non-modifiable factors as family history, age, and gender have different implications.Family history, particularly premature atherosclerotic disease

ISSN 2181-3187

defined as CVD or death from CVD in a first-degree relative before 55 years (in males) or 65 years (in females) is considered an independent risk factor.[10] There is also suggestive evidence that the presence of CVD risk factors may differently influence gender.[4][7] For instance, diabetes and smoking more than 20 cigarettes per day had increased CVD risk in women compared to men.Prevalence of CVD increases significantly with each decade of life.The presence of HIV (human immunodeficiency virus),[13] history of mediastinal or chest wall radiation,microalbuminuria,increased inflammatory markers have also been associated with an increased rate and incidence of CVD. Pointing out specific diet factors like meat consumption, fiber, and coffee and their relation to CVD remains controversial due to significant bias and residual confounding encountered in epidemiological studies.

Evaluation

Thorough clinical history and physical exam directed but not limited to the cardiovascular system are the hallmarks for the diagnosis of CVD. Specifically, a history compatible with obesity, angina, decreased exercise tolerance, orthopnea, paroxysmal nocturnal dyspnea, syncope or presyncope, and claudication should prompt the clinician to obtain a more detailed history and physical exam and, if pertinent, obtain ancillary diagnostic test according to the clinical scenario (e.g., electrocardiogram and cardiac enzymes for patients presenting with chest pain). Besides a diagnosis prompted by clinical suspicion, most of the efforts should be oriented for primary prevention by targeting people with the presence of risk factors and treat modifiable risk factors by all available means. All patient starting at age 20 should be engaged in the discussion of CVD risk factors and lipid measurement. Several calculators that use LDL-cholesterol and HDL-cholesterol levels and the presence of other risk factors calculate a 10-year or 30-year CVD score to determine if additional therapies like the use of statins and aspirin are indicated for primary prevention, generally indicated if such risk is more than ten percent.[10] Like other risk assessment tools, the use of this calculators have some limitations, and it is

recommended to exert precaution when assessing patients with diabetes and familial hypercholesterolemia as their risk can be underestimated.

Enhancing Healthcare Team Outcomes

An interprofessional and patient-oriented approach can help to improve outcomes for people with cardiovascular disease as shown in patients with heart failure (HF) who had better outcomes when the interprofessional involvement of nurses, dietitians, pharmacists, and other health professionals was used (Class 1A).Similarly, positive results were obtained in people in an intervention group who were followed by an interprofessional team comprised of pharmacists, nurses and a team of different physicians. This group had a reduction in all-cause mortality associated with CAD by 76% compared to the control group.[53] Healthcare workers should educate the public on lifestyle changes and reduce the modifiable risk factors for heart disease to a minimum.

References

1.Farley A, McLafferty E, Hendry C. The cardiovascular system. 2012 Oct 31-Nov 6Nurs Stand. 27(9):35-9. [PubMed]

2.Benjamin EJ, Virani SS, Callaway CW, Chamberlain AM, Chang AR, Cheng S, Chiuve SE, Cushman M, Delling FN, Deo R, de Ferranti SD, Ferguson JF, Fornage M, Gillespie C, Isasi CR, Jiménez MC, Jordan LC, Judd SE, Lackland D, Lichtman JH, Lisabeth L, Liu S, Longenecker CT, Lutsey PL, Mackey JS, Matchar DB, Matsushita K, Mussolino ME, Nasir K, O'Flaherty M, Palaniappan LP, Pandey A, Pandey DK, Reeves MJ, Ritchey MD, Rodriguez CJ, Roth GA, Rosamond WD, Sampson UKA, Satou GM, Shah SH, Spartano NL, Tirschwell DL, Tsao CW, Voeks JH, Willey JZ, Wilkins JT, Wu JH, Alger HM, Wong SS, Muntner P., American Heart Association Council on Epidemiology and Prevention Statistics Committee and Stroke Statistics Subcommittee. Heart Disease and Stroke Statistics-2018 Update: A Report From the American Heart Association. Circulation. 2018 Mar 20;137(12):e67-e492. [PubMed]

3.US Preventive Services Task Force. Curry SJ, Krist AH, Owens DK, Barry MJ, Caughey AB, Davidson KW, Doubeni CA, Epling JW, Kemper AR, Kubik M, Landefeld CS, Mangione CM, Silverstein M, Simon MA, Tseng CW, Wong JB. Risk Assessment for Cardiovascular Disease With Nontraditional Risk Factors: US Preventive Services Task Force Recommendation Statement. JAMA. 2018 Jul 17;320(3):272-280. [PubMed]

4.Fox CS, Coady S, Sorlie PD, Levy D, Meigs JB, D'Agostino RB, Wilson PW, Savage PJ. Trends in cardiovascular complications of diabetes. JAMA. 2004 Nov 24;292(20):2495-9. [PubMed]

5.Vasan RS, Sullivan LM, Wilson PW, Sempos CT, Sundström J, Kannel WB, Levy D, D'Agostino RB. Relative importance of borderline and elevated levels of coronary heart disease risk factors. Ann Intern Med. 2005 Mar 15;142(6):393-402. [PubMed]

6.Yusuf S, Hawken S, Ounpuu S, Dans T, Avezum A, Lanas F, McQueen M, Budaj A, Pais P, Varigos J, Lisheng L., INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004 Sep 11-17;364(9438):937-52. [PubMed]

7.Fox CS, Pencina MJ, Wilson PW, Paynter NP, Vasan RS, D'Agostino RB. Lifetime risk of cardiovascular disease among individuals with and without diabetes stratified by obesity status in the Framingham heart study. Diabetes Care. 2008 Aug;31(8):1582-4. [PMC free article] [PubMed]

8.Lloyd-Jones DM, Hong Y, Labarthe D, Mozaffarian D, Appel LJ, Van Horn L, Greenlund K, Daniels S, Nichol G, Tomaselli GF, Arnett DK, Fonarow GC, Ho PM, Lauer MS, Masoudi FA, Robertson RM, Roger V, Schwamm LH, Sorlie P, Yancy CW, Rosamond WD., American Heart Association Strategic Planning Task Force and Statistics Committee. Defining and setting national goals for cardiovascular health

ISSN 2181-3187

promotion and disease reduction: the American Heart Association's strategic Impact Goal through 2020 and beyond. Circulation. 2010 Feb 02;121(4):586-613. [PubMed]

9.Greenland P, Alpert JS, Beller GA, Benjamin EJ, Budoff MJ, Fayad ZA, Foster E, Hlatky MA, Hodgson JM, Kushner FG, Lauer MS, Shaw LJ, Smith SC, Taylor AJ, Weintraub WS, Wenger NK, Jacobs AK, Smith SC, Anderson JL, Albert N, Buller CE, Creager MA, Ettinger SM, Guyton RA, Halperin JL, Hochman JS, Kushner FG, Nishimura R, Ohman EM, Page RL, Stevenson WG, Tarkington LG, Yancy CW., American College of Cardiology Foundation. American Heart Association. 2010 ACCF/AHA guideline for assessment of cardiovascular risk in asymptomatic adults: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2010 Dec 14;56(25):e50-103. [PubMed]

10.Goff DC, Lloyd-Jones DM, Bennett G, Coady S, D'Agostino RB, Gibbons R, Greenland P, Lackland DT, Levy D, O'Donnell CJ, Robinson JG, Schwartz JS, Shero ST, Smith SC, Sorlie P, Stone NJ, Wilson PW, Jordan HS, Nevo L, Wnek J, Anderson JL, Halperin JL, Albert NM, Bozkurt B, Brindis RG, Curtis LH, DeMets D, Hochman JS, Kovacs RJ, Ohman EM, Pressler SJ, Sellke FW, Shen WK, Smith SC, Tomaselli GF., American College of Cardiology/American Heart Association Task Force on Practice Guidelines. 2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. Circulation. 2014 Jun 24;129(25 Suppl 2):S49-73. [PubMed]