Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

Cardiovascular Diseases: An Overview for Treatment Strategies and Diagnostic Tools

Ahmad Musaddif M Alnamy[1], Muteb Aied Alqahtani[2], Amer Khadeer Awedah Al Rabie[3], Zainah Ali Abdullah Alayyafi[4], Budur Ali Ahmed Alshehri[5], Abdulqader Mohammed Joud Allah Asiri[6], Amer Musa Mnhmmad Albarqi[7], Hassan Ali Hassan Barqi[8], Abdullah Bajad Al-Ameedi[9], Izzuldeen Ali Alfaris[10], Shaker Abdullah Alshehri[11], Mohammed Hassan Ali Alribi[12]

Abstract

Cardiovascular disease (CVD) remains a leading cause of global morbidity and mortality, encompassing conditions such as coronary artery disease (CAD), cerebrovascular disease, peripheral artery disease (PAD), and aortic atherosclerosis. Atherosclerosis, driven by risk factors like dyslipidemia, hypertension, and lifestyle habits, underlies many CVDs. Despite advancements in diagnosis and treatment, the prevalence of CVD continues to rise, necessitating effective prevention and management strategies.This article provides an overview of CVD, focusing on its pathophysiology, epidemiology, diagnostic tools, and treatment strategies. It emphasizes the importance of risk factor modification, early detection, and interprofessional collaboration of pharmacists, clinical pathologists, epidemiology workers, and medical records workers in improving patient outcomes.The review synthesizes evidence from landmark studies, such as the INTERHEART and Framingham Heart studies, and current guidelines from organizations like the American Heart Association (AHA). It explores the role of diagnostic tools, including electrocardiograms, cardiac enzymes, and advanced imaging techniques, alongside emerging methods like coronary artery calcium (CAC) scoring.CVD is influenced by both modifiable (e.g., smoking, physical inactivity) and non-modifiable (e.g., age, family history) risk factors. Early detection and management of atherosclerosis are critical for prevention. Interprofessional care models have demonstrated improved outcomes in heart failure and CAD, reducing mortality and hospital readmissions. Emerging therapies, such as PCSK9 inhibitors and SGLT2 inhibitors, show promise in managing CVD.Addressing CVD requires a multifaceted approach, including lifestyle modifications, pharmacological interventions, and interprofessional collaboration. Public health initiatives and patient education are essential for reducing the global burden of CVD.

Keywords: *Cardiovascular Disease, Atherosclerosis, Risk Factors, Prevention, Interprofessional Care, Diagnostic Tools, Treatment Strategies.*

Introduction

The cardiovascular system, comprising the heart and blood vessels, is a critical physiological network responsible for circulating blood throughout the body [1]. Despite its vital role, this system is susceptible to a multitude of disorders, including but not limited to endocarditis, rheumatic heart disease, and conduction system abnormalities. Among these, cardiovascular disease (CVD), also referred to as heart disease, represents a significant global health burden. This article focuses on four primary manifestations of CVD, which are as follows [2]. Coronary Artery Disease (CAD), often termed Coronary Heart Disease

[1] Ksa, Ministry of Health, Sabya General Hospital,Jazan Cluster
[2] Ksa, Ministry of Health, Prince Sultan Military Medical City.
[3] Ksa, Ministry of Health, Jumat Rabia Al-Maqata Health Care Center.
[4] Ksa, Ministry of Health, Alkoush Health Care Center.
[5] Ksa, Ministry of Health, Almajarda Health Care Center
[6] Ksa, Ministry of Health, Jumat Rabia Al-Maqata Health Care Center
[7] Ksa, Ministry of Health, Jumat Rabia Al-Maqata Health Care Center
[8] Ksa, Ministry of Health, Jumat Rabia Al-Maqata Health Care Center
[9] Ksa, Ministry of Health, Al Khafiya Health Center
[10] Ksa, Ministry of Health, Bariq Health Sector
[11] Ksa, Ministry of Health, Thloothalnzr Health Care Center
[12] Ksa, Ministry of Health, Khulat Nusba Health Care Center

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

(CHD), arises from reduced myocardial perfusion, leading to clinical manifestations such as angina pectoris, myocardial infarction (MI), and heart failure. It is estimated that CAD accounts for approximately one-third to one-half of all CVD cases, making it a predominant contributor to cardiovascular morbidity and mortality. Cerebrovascular Disease (CVD) encompasses conditions such as stroke and transient ischemic attack (TIA), which result from disruptions in blood flow to the brain. These events are often associated with significant neurological deficits and long-term disability, underscoring the importance of early detection and management. Peripheral Artery Disease (PAD) primarily involves arterial pathology affecting the extremities, particularly the lower limbs. A hallmark symptom is intermittent claudication, characterized by pain during physical activity due to inadequate blood supply. If left untreated, PAD can progress to critical limb ischemia, posing a risk of tissue necrosis and amputation. Aortic Atherosclerosis involves the accumulation of atherosclerotic plaques within the aorta, which can lead to the development of thoracic and abdominal aortic aneurysms. These aneurysms pose a significant risk of rupture, a life-threatening complication requiring urgent medical intervention. Collectively, these four entities represent the core focus of this article, highlighting the diverse and complex nature of cardiovascular disease and its profound impact on global health [2].

Etiology

Cardiovascular disease (CVD) can arise from a variety of direct etiologies, such as emboli in patients with atrial fibrillation leading to ischemic stroke or rheumatic fever causing valvular heart disease. However, addressing risk factors associated with the development of atherosclerosis is of paramount importance, as it serves as a common denominator in the pathophysiology of most CVD cases. Atherosclerosis, characterized by the buildup of plaque within arterial walls, underlies many cardiovascular conditions, making its prevention and management critical to reducing the global burden of CVD. The industrialization of economies and the subsequent shift from physically demanding occupations to sedentary lifestyles have significantly contributed to the rising prevalence of CVD over the past few decades. This shift, coupled with a consumerist and technology-driven culture, has led to longer work hours, extended commutes, and reduced leisure time for physical activity. These societal changes have fostered an environment conducive to physical inactivity, poor dietary habits, and the consumption of high-calorie diets rich in saturated fats and sugars. Such lifestyle factors are strongly associated with the development of atherosclerosis and other metabolic disturbances, including metabolic syndrome, diabetes mellitus, and hypertension, all of which are highly prevalent among individuals with CVD [3][2][4][5]. The INTERHEART study, a landmark investigation involving participants from 52 countries across high-, middle-, and low-income regions, identified nine modifiable risk factors accounting for 90% of the risk of a first myocardial infarction (MI). These factors include smoking, dyslipidemia, hypertension, diabetes, abdominal obesity, psychosocial stress, low consumption of fruits and vegetables, irregular alcohol consumption, and physical inactivity. Notably, smoking alone accounted for 36% of the population-attributable risk of MI, highlighting its significant role in CVD development [6]. Similarly, large cohort studies such as the Framingham Heart Study [7] and the Third National Health and Nutrition Examination Survey (NHANES III) [5] have consistently demonstrated the strong association and predictive value of dyslipidemia, hypertension, smoking, and glucose intolerance in the development of CVD. These studies revealed that 60% to 90% of coronary heart disease (CHD) events occurred in individuals with at least one of these risk factors.

In response to these findings, health promotion initiatives, such as those led by the American Heart Association (AHA), have emphasized seven key recommendations to reduce CVD risk: avoiding tobacco use, maintaining physical activity, adopting a healthy diet, and achieving normal levels of blood pressure, body weight, blood glucose, and cholesterol [8][9]. These guidelines underscore the importance of addressing modifiable risk factors through lifestyle modifications and preventive care. In addition to modifiable risk factors, non-modifiable factors such as family history, age, and gender also play a significant

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

role in CVD etiology. A family history of premature atherosclerotic disease, defined as CVD or CVD-related death in a first-degree relative before the age of 55 in males or 65 in females, is considered an independent risk factor [10]. Furthermore, gender differences influence the impact of certain risk factors. For example, diabetes and heavy smoking (more than 20 cigarettes per day) have been shown to confer a higher CVD risk in women compared to men [11]. Additionally, the prevalence of CVD increases significantly with age, with each decade of life associated with a higher likelihood of developing cardiovascular conditions [12].

Other factors associated with an increased risk of CVD include HIV infection [13], a history of mediastinal or chest wall radiation [14], microalbuminuria [15], and elevated inflammatory markers such as C-reactive protein (CRP) [16][17]. These factors highlight the complex interplay between infectious, environmental, and systemic inflammatory processes in the development of CVD. The role of specific dietary factors, such as meat consumption, fiber intake, and coffee consumption, in CVD remains controversial. Epidemiological studies investigating these associations often face significant bias and residual confounding, making it challenging to draw definitive conclusions [18][19]. Nonetheless, a growing body of evidence supports the importance of a balanced diet rich in fruits, vegetables, and whole grains in reducing CVD risk. In summary, the etiology of CVD is multifactorial, involving a combination of modifiable and non-modifiable risk factors. Addressing these factors through targeted interventions, public health initiatives, and individualized patient care is essential for reducing the global burden of cardiovascular disease.

Epidemiology

Cardiovascular diseases (CVD) have consistently ranked among the top two leading causes of death in the United States since 1975. In 2015, heart disease was the primary cause of mortality, accounting for 633,842 deaths, or approximately 1 in every 4 deaths, followed closely by cancer, which was responsible for 595,930 deaths [2]. Globally, CVD is the leading cause of death, with the World Health Organization (WHO) estimating 17.7 million deaths attributed to cardiovascular conditions in 2015. Beyond its significant mortality burden, CVD is also the most costly disease, surpassing other chronic conditions such as Alzheimer's disease and diabetes. The indirect costs associated with CVD were calculated to be 368 billion by 2035, underscoring the substantial economic impact of this disease [20]. Despite advancements in diagnosis and treatment over the past few decades, which have contributed to a decline in age-adjusted rates and acute mortality from myocardial infarction (MI), the risk of developing heart disease remains alarmingly high. Studies estimate that the general population has a 50% risk of developing heart disease by the age of 45 [7][21]. This risk escalates significantly with age, reflecting the progressive nature of cardiovascular conditions. Additionally, there are notable gender differences in the incidence of CVD. Men exhibit a higher incidence of heart disease at younger ages compared to women. However, this disparity narrows progressively after women reach menopause, suggesting a protective role of estrogen in premenopausal women [2]. The burden of CVD is further compounded by its widespread prevalence and the associated healthcare costs. While improvements in medical interventions have reduced acute mortality rates, the overall prevalence of CVD continues to rise, driven by aging populations and the increasing prevalence of risk factors such as obesity, diabetes, and hypertension. These trends highlight the need for continued public health efforts aimed at prevention, early detection, and management of cardiovascular conditions to mitigate their impact on both individual health and healthcare systems worldwide.

Pathophysiology

Atherosclerosis is a complex and progressive pathological process affecting the arteries and aorta, characterized by the narrowing or occlusion of blood vessels due to plaque formation, which can lead to reduced or absent blood flow. This process is a primary contributor to cardiovascular disease (CVD) and

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

involves multiple interrelated factors, including dyslipidemia, immunologic phenomena, inflammation, and endothelial dysfunction. These factors collectively initiate the formation of fatty streaks, which are early markers of atherosclerotic development and can begin as early as childhood [22][23][24]. The progression of atherosclerosis begins with intimal thickening, followed by the accumulation of lipid-laden macrophages, known as foam cells, and extracellular matrix within the arterial wall. This is accompanied by the aggregation and proliferation of smooth muscle cells, leading to the formation of an atheroma plaque [25]. As these lesions expand, apoptosis (programmed cell death) of the deeper layers of the plaque can occur, triggering further recruitment of macrophages and promoting calcification. Over time, these changes result in the stabilization or destabilization of the plaque, with the latter increasing the risk of rupture and subsequent thrombotic events, such as myocardial infarction or stroke [26]. In addition to these primary mechanisms, other processes such as arterial remodeling and intra-plaque hemorrhage play significant roles in modulating the progression of atherosclerotic CVD. Arterial remodeling refers to structural changes in the vessel wall in response to plaque formation, which can either compensate for the narrowing (positive remodeling) or exacerbate it (negative remodeling). Intra-plaque hemorrhage, often resulting from the rupture of fragile microvessels within the plaque, can accelerate plaque growth and instability by introducing red blood cells and inflammatory mediators into the lesion [27]. While these mechanisms are critical to understanding the full spectrum of atherosclerotic disease, they extend beyond the scope of this discussion. In summary, atherosclerosis is a multifaceted process driven by dyslipidemia, inflammation, and endothelial dysfunction, leading to the formation and progression of atherosclerotic plaques. These plaques can compromise blood flow and precipitate cardiovascular events, underscoring the importance of addressing underlying risk factors to mitigate the development and progression of CVD.

History and Physical

The clinical presentation of cardiovascular diseases (CVD) is highly variable, ranging from asymptomatic conditions, such as silent ischemia or angiographic evidence of coronary artery disease (CAD) without overt symptoms, to classic presentations like acute myocardial infarction (MI) with typical anginal chest pain or cerebrovascular accidents (CVA) characterized by sudden-onset focal neurological deficits [28][29]. This wide spectrum of presentations underscores the importance of a thorough history and physical examination in the evaluation of CVD. In coronary artery disease, the hallmark symptom is angina, which is typically described as substernal chest pain of a crushing or pressure-like quality. This pain often radiates to the medial aspect of the left upper extremity, neck, or jaw and may be accompanied by associated symptoms such as nausea, vomiting, palpitations, diaphoresis, syncope, or even sudden death [30]. However, healthcare providers must remain vigilant for atypical presentations, particularly in high-risk populations. For instance, some patients, especially those with a history of CAD or MI, may present with nonspecific symptoms such as dizziness, nausea, or fatigue as the sole manifestations of an acute MI [31][32][33]. Additionally, chest pain exacerbated by physical activity and relieved by rest or nitroglycerin is highly suggestive of ischemic etiology and should prompt further evaluation [35].

Cerebrovascular disease, including transient ischemic attacks (TIA) and strokes, is characterized by neurological deficits. The key differentiating factor between TIA and stroke is the duration of symptoms, with TIA symptoms resolving within 24 hours [36]. Common stroke symptoms include sudden-onset extremity weakness, dysarthria, and facial droop, which are often localized to the affected area of the brain [37][38]. However, posterior circulation strokes may present with more subtle or nonspecific symptoms, such as ataxia, nystagmus, dizziness, headache, syncope, nausea, or vomiting. These presentations can be challenging to correlate with stroke and require a high index of suspicion, particularly in patients with known risk factors for CVD [39]. Peripheral artery disease (PAD) typically manifests as intermittent claudication, described as cramp-like muscle pain in the limbs during physical activity due to inadequate blood flow, which subsides with rest [40]. In severe cases, PAD may present with skin color changes,

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

temperature differences, or even tissue necrosis [41]. Thoracic aortic aneurysms are often asymptomatic in the early stages but may cause symptoms as they enlarge, such as cough, shortness of breath, or dysphonia due to compression of surrounding structures. Acute rupture of a thoracic aortic aneurysm presents sudden, severe chest or back pain and constitutes a medical emergency [42]. Similarly, abdominal aortic aneurysms (AAA) are frequently asymptomatic until rupture, which is characterized by sudden-onset abdominal pain, syncope, or hemodynamic instability [43].

A comprehensive physical examination is critical for the diagnosis and assessment of CVD. The examination should begin with a general inspection to identify signs of distress, such as pallor, diaphoresis, or respiratory difficulty, which may indicate acute conditions like angina or decompensated heart failure. Chronic skin changes, such as ulcers or hair loss in the extremities, may suggest PAD. The carotid examination should be performed with the patient in a supine position and the back elevated to 30 degrees. This allows for palpation and auscultation of carotid pulses, detection of bruits, and evaluation of jugular venous pulsations, which can provide clues about right heart pressure and volume status [44]. The precordial examination involves inspection, palpation, and auscultation. Inspection may reveal visible heaves or lifts, while palpation can identify chest wall tenderness, thrills, or the point of maximal impulse (PMI). Auscultation of heart sounds begins in the aortic area, focusing on the identification of S1 and S2 sounds, followed by the characterization of any murmurs. Attention should be paid to changes in murmurs with respiration or specific maneuvers, as these can help differentiate between various valvular pathologies. Finally, palpation of peripheral pulses, with bilateral comparison when applicable, is essential to assess arterial insufficiency or asymmetry, which may indicate underlying vascular disease [44]. In summary, the history and physical examination are foundational to the evaluation of cardiovascular diseases. Recognizing both classic and atypical presentations, along with a systematic and thorough physical examination, enables healthcare providers to accurately diagnose and manage CVD, ultimately improving patient outcomes.

Evaluation and Diagnosis

The evaluation of cardiovascular disease (CVD) begins with a thorough clinical history and a comprehensive physical examination, with a particular focus on the cardiovascular system. A history suggestive of obesity, angina, decreased exercise tolerance, orthopnea, paroxysmal nocturnal dyspnea, syncope or presyncope, and claudication should alert clinicians to the possibility of underlying CVD and prompt further investigation. Ancillary diagnostic tests, such as electrocardiograms (ECG) and cardiac enzyme measurements, are often necessary in patients presenting with chest pain or other symptoms indicative of acute coronary syndromes. These tests help confirm or rule out ischemic events and guide subsequent management [9]. While diagnostic evaluation is critical for patients with symptoms, a significant emphasis should also be placed on primary prevention, particularly in individuals with identifiable risk factors. Primary prevention strategies aim to reduce the incidence of CVD by addressing modifiable risk factors such as hypertension, dyslipidemia, diabetes, smoking, and physical inactivity. For all patients aged 20 and older, discussions about CVD risk factors and lipid profile measurements should be initiated. Several risk assessment tools, such as the ASCVD (Atherosclerotic Cardiovascular Disease) Risk Calculator, utilize LDL-cholesterol, HDL-cholesterol levels, and other risk factors to estimate a 10-year or 30-year risk of developing CVD. These calculators help determine whether additional therapies, such as statins or aspirin, are warranted for primary prevention, particularly if the calculated risk exceeds 10% [10].

However, these risk assessment tools have limitations. For instance, they may underestimate the risk in patients with diabetes or familial hypercholesterolemia, populations known to have a higher baseline risk of CVD. Additionally, these calculators were often developed using cohorts that excluded individuals over the age of 79, making their application in older adults less reliable. In such cases, an individualized approach is recommended, involving a careful discussion of the risks and benefits of adjunctive therapies and

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

consideration of life expectancy. Experts generally recommend reassessing CVD risk every 4 to 6 years to account for changes in risk factors over time [9]. Preventative measures, such as adopting healthy dietary habits, maintaining a healthy weight, and engaging in regular physical activity, are essential for all patients, particularly those with non-modifiable risk factors like a family history of premature coronary heart disease (CHD) or post-menopausal status. These lifestyle modifications can significantly reduce the risk of developing CVD and are a cornerstone of primary prevention [9][8].

In addition to traditional risk assessment tools, emerging diagnostic techniques are being explored to enhance early detection and risk stratification. Inflammatory markers, such as high-sensitivity C-reactive protein (hs-CRP), and advanced imaging techniques, like coronary artery calcium (CAC) scoring, are under investigation for their potential to identify individuals with subclinical atherosclerosis. CAC scoring, in particular, quantifies the amount of calcified plaque in the coronary arteries and has been shown to improve risk prediction beyond traditional risk factors. However, these tools are not yet widely recommended for routine use and should not replace the identification and management of known risk factors. Nonetheless, they hold promise for the future of primary prevention by enabling earlier detection of at-risk individuals [45]. In summary, the evaluation of CVD involves a combination of clinical history, physical examination, and diagnostic testing tailored to the patient's presentation. Primary prevention remains a critical component of CVD management, with a focus on addressing modifiable risk factors and utilizing risk assessment tools to guide therapy. Emerging techniques, such as CAC scoring and inflammatory markers, offer potential for improved risk stratification but require further research before widespread adoption. A proactive and individualized approach to CVD evaluation and prevention is essential to reducing the global burden of cardiovascular disease.

Treatment and Management

The management of cardiovascular disease (CVD) is highly individualized and depends on the specific clinical scenario, ranging from acute interventions for life-threatening conditions to long-term strategies for secondary prevention. For instance, catheter-directed thrombolysis may be employed in cases of acute ischemic stroke to restore blood flow to the brain, while angioplasty and stenting are commonly used to treat peripheral vascular disease (PVD) and coronary heart disease (CHD), respectively. Despite the diversity of interventions, a cornerstone of CVD management is patient education on the importance of secondary prevention through risk factor modification and lifestyle changes [9][46].

Acute Management

In acute settings, the primary goal is to stabilize the patient and prevent further damage. For acute coronary syndromes (ACS), such as myocardial infarction (MI), immediate interventions may include the administration of antiplatelet agents (e.g., aspirin), anticoagulants, nitrates, and beta-blockers to reduce myocardial oxygen demand and prevent further clot formation. Percutaneous coronary intervention (PCI) with stent placement is often performed to restore blood flow in occluded coronary arteries. Similarly, in acute ischemic stroke, thrombolytic therapy (e.g., tissue plasminogen activator or tPA) or mechanical thrombectomy may be used to dissolve or remove the clot and restore cerebral perfusion [46]. For patients with acute decompensated heart failure, management focuses on reducing fluid overload and improving cardiac function. Diuretics, vasodilators, and inotropic agents are commonly used, while non-invasive ventilation or intubation may be required in severe cases. In acute aortic syndromes, such as aortic dissection or rupture, surgical intervention or endovascular repair is often necessary to prevent catastrophic outcomes [46].

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

Long-Term Management and Secondary Prevention

Once the acute phase is managed, the focus shifts to long-term treatment and secondary prevention. Patients with established CVD should be strongly encouraged to adopt lifestyle modifications, including a heart-healthy diet (e.g., the Mediterranean or DASH diet), regular physical activity, smoking cessation, and weight management. These changes can significantly reduce the risk of recurrent events and improve overall cardiovascular health [9]. Pharmacological therapy plays a critical role in secondary prevention. Statins are the mainstay of treatment for dyslipidemia, as they lower LDL cholesterol and stabilize atherosclerotic plaques. Antiplatelet agents, such as aspirin or clopidogrel, are often prescribed to prevent thrombotic events in patients with a history of MI, stroke, or PVD. For hypertension, a combination of antihypertensive medications, including ACE inhibitors, angiotensin II receptor blockers (ARBs), beta-blockers, and calcium channel blockers, is used to achieve target blood pressure levels. In patients with diabetes, tight glycemic control is essential to reduce the risk of microvascular and macrovascular complications [9][46].

Risk Factor Modification

Addressing modifiable risk factors is a key component of CVD management. Smoking cessation programs, dietary counseling, and exercise regimens should be offered to all patients. For those with obesity or metabolic syndrome, weight loss and management of associated conditions, such as insulin resistance and dyslipidemia, are critical. Regular monitoring of blood pressure, lipid levels, and blood glucose is essential to ensure that treatment goals are met and to adjust therapy as needed [9].

Emerging Therapies and Personalized Medicine

Advances in medical research have led to the development of novel therapies for CVD. For example, PCSK9 inhibitors have emerged as a powerful tool for lowering LDL cholesterol in patients who are intolerant to statins or require additional lipid-lowering therapy. Similarly, sodium-glucose cotransporter-2 (SGLT2) inhibitors and glucagon-like peptide-1 (GLP-1) receptor agonists, originally developed for diabetes management, have shown significant cardiovascular benefits, including reduced risk of heart failure and cardiovascular mortality [46]. Personalized medicine, which tailors treatment based on genetic, biomarker, and clinical data, is also gaining traction in CVD management. For instance, genetic testing for familial hypercholesterolemia or pharmacogenetic testing to guide antiplatelet therapy selection can optimize treatment outcomes. Additionally, wearable devices and digital health tools are increasingly being used to monitor patients remotely and promote adherence to lifestyle and medication regimens [46]. The management of CVD is multifaceted, encompassing acute interventions, long-term pharmacological therapy, and lifestyle modifications. Secondary prevention through risk factor modification is essential to reduce the risk of recurrent events and improve patient outcomes. Emerging therapies and personalized approaches hold promise for further enhancing CVD management, but patient education and adherence to treatment remain the foundation of effective care. By addressing both the immediate and long-term needs of patients, healthcare providers can significantly reduce the burden of cardiovascular disease and improve quality of life.

Differential Diagnosis

Differential diagnosis is crucial in distinguishing between cardiovascular conditions with overlapping clinical presentations. Several diseases share symptoms such as chest pain, dyspnea, and fatigue, necessitating a thorough evaluation. Acute pericarditis presents with sharp, pleuritic chest pain relieved by leaning forward, often accompanied by a pericardial friction rub and ST-segment elevations in multiple ECG leads. Angina pectoris, caused by myocardial ischemia, manifests as substernal chest discomfort triggered by exertion and

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

relieved by rest or nitroglycerin. Unlike pericarditis, angina lacks inflammatory markers and positional relief. Atherosclerosis is a progressive condition involving lipid plaque accumulation in arterial walls, leading to reduced blood flow and ischemic symptoms. It predisposes individuals to coronary artery vasospasm, a transient, reversible constriction of coronary arteries that causes episodic chest pain, often occurring at rest and relieved by calcium channel blockers. Dilated cardiomyopathy involves ventricular dilation and systolic dysfunction, presenting symptoms of heart failure symptoms such as dyspnea, fatigue, and peripheral edema. Giant cell arteritis, a systemic vasculitis, can lead to ischemic complications, including myocardial infarction, if coronary arteries are affected. It is characterized by headache, jaw claudication, and elevated inflammatory markers. Hypertension and hypertensive heart disease contribute to increased myocardial workload, leading to left ventricular hypertrophy and heart failure. Chronic hypertension accelerates atherosclerosis, compounding cardiovascular risk. Kawasaki disease, a pediatric vasculitis, involves coronary artery aneurysms and presents fever, conjunctivitis, rash, and cervical lymphadenopathy. Myocarditis, often viral in etiology, leads to myocardial inflammation and dysfunction, causing chest pain, arrhythmias, and heart failure. Diagnosis relies on cardiac MRI, biomarkers, and endomyocardial biopsy. Differentiating these conditions requires clinical evaluation, imaging, and laboratory testing to ensure accurate diagnosis and appropriate management.

Complications

Cardiovascular disease (CVD) is associated with a wide range of complications, the most feared of which is death. Despite significant advancements in medical research and treatment over the past few decades, CVD remains one of the leading causes of mortality worldwide, largely due to its high prevalence in the population [2]. Beyond mortality, CVD often leads to prolonged hospitalizations, physical disability, and increased healthcare costs, all of which place a substantial burden on healthcare systems. Policymakers are particularly concerned about these complications, as their prevalence is expected to rise in the coming decades, driven by aging populations and the increasing prevalence of risk factors such as obesity, diabetes, and hypertension [20]. In patients with heart failure with a reduced ejection fraction (HFrEF), defined as an ejection fraction of less than 35%, the risk of life-threatening arrhythmias is significantly elevated. Current guidelines recommend the implantation of an implantable cardioverter-defibrillator (ICD) for patients with symptoms corresponding to New York Heart Association (NYHA) Class II-IV, despite optimal medical therapy. This intervention is crucial for preventing sudden cardiac death in this high-risk population [47].

Stroke, another major complication of CVD, can result in severe and disabling sequelae. These include dysarthria, aphasia, dysphagia, and focal or generalized muscle weakness or paresis, which may be temporary or permanent. In severe cases, stroke can lead to hemiplegia, rendering patients bedbound and significantly increasing their risk of secondary complications such as urinary tract infections, pressure ulcers, and thromboembolic events due to immobility [48][49]. Peripheral artery disease (PAD) is also associated with significant complications. Patients with PAD have an increased risk of all-cause mortality compared to those without the condition [50]. Chronic wounds, physical limitations due to claudication, and critical limb ischemia are common complications that can severely impact quality of life. In advanced cases, limb amputation may be necessary, further exacerbating disability and healthcare costs [51]. In summary, the complications of CVD are diverse and far-reaching, encompassing mortality, physical disability, and significant healthcare burdens. Effective management and prevention strategies are essential to mitigate these complications and improve outcomes for patients with CVD.

Consultation

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

The management of cardiovascular disease (CVD) necessitates an interprofessional approach to ensure comprehensive and patient-centered care. This collaborative model involves primary care physicians, nurses, dietitians, cardiologists, neurologists, and other specialists, all working together to optimize patient outcomes. Such an approach has been demonstrated to be particularly beneficial in managing complex conditions like heart failure and coronary artery disease. For instance, in heart failure, interprofessional teams have been shown to improve patient adherence to treatment, reduce hospital readmissions, and enhance overall quality of life [52]. Similarly, in coronary artery disease, coordinated care involving lifestyle modification, pharmacological management, and patient education has led to better control of risk factors and reduced cardiovascular events [53]. The success of interprofessional collaboration in these areas has prompted ongoing investigations into its potential benefits for other forms of CVD, such as peripheral artery disease, cerebrovascular disease, and arrhythmias. Early evidence suggests that this model of care can improve patient outcomes by addressing the multifaceted nature of CVD, including its physical, psychological, and social dimensions. For example, dietitians play a crucial role in promoting heart-healthy eating habits, while nurses provide essential education on medication adherence and symptom monitoring. Cardiologists and neurologists contribute specialized expertise in diagnosing and managing complex cardiovascular and cerebrovascular conditions, respectively. By fostering communication and coordination among healthcare providers, an interprofessional approach ensures that patients receive holistic care tailored to their unique needs. This not only enhances clinical outcomes but also improves patient satisfaction and reduces healthcare costs. As research continues to explore the impact of this model on various forms of CVD, its promise for transforming cardiovascular care remains highly encouraging.

Patient Education on Cardiovascular Disease Prevention

Preventing cardiovascular disease (CVD) requires a proactive approach focusing on lifestyle modifications and early risk factor management. Primary prevention efforts should begin as early as possible to delay or prevent the onset of atherosclerosis, which significantly contributes to future CVD risk. The American Heart Association (AHA) introduced the concept of "ideal cardiovascular health," which includes key health behaviors and factors. Ideal health behaviors involve maintaining a non-smoking status, achieving a body mass index (BMI) below 25 kg/m^2, engaging in regular physical activity, and adhering to dietary recommendations based on current guidelines. Ideal health factors include maintaining untreated total cholesterol below 200 mg/dL, untreated blood pressure under 120/80 mmHg, and fasting blood glucose below 100 mg/dL. These efforts aim to improve overall public health and reduce CVD-related mortality by 20%. High-risk populations, including individuals with diabetes, hypertension, hyperlipidemia, obesity, and those who smoke, require targeted education and interventions. Risk factor modification is critical, requiring effective management of medical conditions, smoking cessation, weight loss strategies, and consistent physical activity. Healthcare providers should emphasize the importance of routine health screenings, medication adherence, and dietary changes tailored to individual risk profiles. Pharmacological interventions, such as statins for cholesterol management and low-dose aspirin for select patients, play a role in primary and secondary prevention. However, their use must be personalized based on risk assessment. By combining lifestyle changes with appropriate medical management, patient education can significantly contribute to reducing the burden of cardiovascular disease and improving long-term health outcomes [8].

Other Issues

Cardiovascular disease (CVD) encompasses four primary entities: coronary artery disease (CAD), cerebrovascular disease (CVD), peripheral vascular disease (PVD), and aortic atherosclerosis. These conditions collectively represent a significant global health burden, with CVD being the leading cause of death worldwide. The high prevalence and mortality associated with CVD underscore the urgent need for

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

effective prevention and management strategies. Atherosclerosis, the underlying pathological process in many cardiovascular conditions, is a key target for primary prevention efforts. Measures aimed at slowing or halting the progression of atherosclerosis are central to reducing the incidence of CVD. These measures include controlling modifiable risk factors such as hypertension, dyslipidemia, diabetes, and smoking, as well as promoting lifestyle modifications like regular physical activity, a heart-healthy diet, and weight management. Early identification and intervention in individuals with risk factors are critical to preventing the development of clinical CVD. Risk factor modification and lifestyle changes are paramount in both primary and secondary prevention of CVD. For primary prevention, public health initiatives and individualized patient education are essential to encourage healthier behaviors and reduce the prevalence of risk factors. In secondary prevention, patients with established CVD benefit from aggressive management of risk factors to prevent disease progression and recurrent events. Pharmacological therapies, such as statins, antihypertensives, and antiplatelet agents, play a crucial role in this context. In summary, addressing atherosclerosis and modifying risk factors through lifestyle changes and medical interventions are the cornerstones of CVD prevention. A proactive approach to reducing the global burden of CVD requires concerted efforts from healthcare providers, policymakers, and individuals alike.

Enhancing Healthcare Team Outcomes

An interprofessional and patient-centered approach has been shown to significantly improve outcomes for individuals with cardiovascular disease (CVD). For instance, patients with heart failure (HF) who received care from an interprofessional team, including nurses, dietitians, pharmacists, and other healthcare professionals, demonstrated better clinical outcomes, as evidenced by reduced hospital readmissions and improved quality of life (Class 1A evidence) [52]. This collaborative model ensures that patients receive comprehensive care, addressing not only their medical needs but also their nutritional, psychological, and social well-being. Similarly, studies have highlighted the benefits of interprofessional teams in managing coronary artery disease (CAD). In one intervention, patients followed by a team comprising pharmacists, nurses, and physicians experienced a 76% reduction in all-cause mortality compared to a control group [53]. This underscores the importance of coordinated care in optimizing patient outcomes and reducing the burden of CVD. Healthcare providers play a critical role in educating the public about lifestyle modifications and minimizing modifiable risk factors for heart disease, such as smoking, poor diet, physical inactivity, and uncontrolled hypertension. By promoting heart-healthy behaviors and early intervention, healthcare teams can prevent the onset and progression of CVD. Effective communication and collaboration among team members, combined with patient engagement, are essential for delivering high-quality, holistic care. Ultimately, an interprofessional approach not only enhances patient outcomes but also contributes to the overall reduction of CVD-related morbidity and mortality [54].

Role of Medical Records in Cardiovascular Diseases

Medical records play a pivotal role in the management and prevention of cardiovascular diseases (CVD), serving as a comprehensive repository of patient information that guides clinical decision-making, enhances continuity of care, and supports research and public health initiatives. In the context of CVD, where patients often have complex medical histories and multiple comorbidities, accurate and detailed medical records are indispensable for delivering high-quality care. One of the primary functions of medical records is to provide a complete and up-to-date account of a patient's cardiovascular health. This includes documentation of risk factors (e.g., hypertension, diabetes, smoking status), diagnostic test results (e.g., lipid profiles, electrocardiograms, imaging studies), and treatment plans (e.g., medications, surgical interventions, lifestyle recommendations). Such information enables healthcare providers to tailor interventions to the individual needs of the patient, ensuring that care is both personalized and evidence-based. For example, a patient's medical record can alert clinicians to contraindications for certain medications or the need for

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

more aggressive risk factor management. Medical records also facilitate continuity of care, which is particularly important for CVD patients who often require long-term follow-up and coordination among multiple specialists. By maintaining a centralized record that is accessible to all members of the healthcare team, providers can ensure that care is consistent and avoid redundant tests or conflicting treatments. This is especially critical in interprofessional care models, where cardiologists, primary care physicians, nurses, dietitians, and pharmacists collaborate to manage complex cases.

In addition to supporting clinical care, medical records are a valuable resource for research and public health. Aggregated and anonymized data from electronic health records (EHRs) can be used to identify trends in CVD prevalence, evaluate the effectiveness of treatments, and inform the development of guidelines and policies. For instance, large-scale analyses of medical records have contributed to our understanding of the impact of risk factors like obesity and physical inactivity on cardiovascular outcomes. Moreover, medical records play a crucial role in patient education and engagement. By providing patients with access to their own health information, clinicians can empower them to take an active role in managing their condition. For example, a patient with hypertension can track their blood pressure readings over time and better understand the impact of lifestyle changes or medication adjustments. In summary, medical records are an essential tool in the prevention, diagnosis, and management of cardiovascular diseases. They support clinical decision-making, enhance care coordination, contribute to research, and promote patient engagement, ultimately improving outcomes for individuals with CVD. As healthcare systems continue to adopt and refine electronic health record systems, the potential for medical records to transform cardiovascular care will only grow.

Conclusion

Cardiovascular disease (CVD) remains a significant global health challenge, contributing to high rates of morbidity and mortality worldwide. This article highlights the complex interplay of risk factors, including lifestyle habits, genetic predisposition, and systemic conditions like hypertension and diabetes, in the development and progression of CVD. Atherosclerosis, the underlying pathological process in many CVDs, underscores the importance of early detection and aggressive management of modifiable risk factors. The review emphasizes the critical role of diagnostic tools, such as electrocardiograms, cardiac enzymes, and advanced imaging techniques, in identifying and managing CVD. Emerging methods, like coronary artery calcium (CAC) scoring, offer promising avenues for early detection and risk stratification. Additionally, interprofessional care models have proven effective in improving outcomes for patients with heart failure and CAD, demonstrating the value of collaborative, patient-centered care. Prevention remains the cornerstone of CVD management. Public health initiatives, patient education, and lifestyle modifications are essential for reducing the prevalence of CVD. Pharmacological interventions, including statins, antihypertensives, and novel therapies like PCSK9 inhibitors, play a vital role in both primary and secondary prevention. In conclusion, addressing the global burden of CVD requires a comprehensive approach that integrates risk factor modification, early detection, and interprofessional collaboration. By prioritizing prevention and leveraging advancements in diagnostics and treatment, healthcare providers can significantly improve outcomes for individuals with CVD and reduce its impact on public health.

References

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

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.

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.

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.

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.

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.

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.

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

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.

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.

Njølstad I, Arnesen E, Lund-Larsen PG. Smoking, serum lipids, blood pressure, and sex differences in myocardial infarction. A 12-year follow-up of the Finnmark Study. Circulation. 1996 Feb 01;93(3):450-6.

Savji N, Rockman CB, Skolnick AH, Guo Y, Adelman MA, Riles T, Berger JS. Association between advanced age and vascular disease in different arterial territories: a population database of over 3.6 million subjects. J Am Coll Cardiol. 2013 Apr 23;61(16):1736-43.

Currier JS, Taylor A, Boyd F, Dezii CM, Kawabata H, Burtcel B, Maa JF, Hodder S. Coronary heart disease in HIV-infected individuals. J Acquir Immune Defic Syndr. 2003 Aug 01;33(4):506-12.

Khouri MG, Douglas PS, Mackey JR, Martin M, Scott JM, Scherrer-Crosbie M, Jones LW. Cancer therapy-induced cardiac toxicity in early breast cancer: addressing the unresolved issues. Circulation. 2012 Dec 04;126(23):2749-63.

Gerstein HC, Mann JF, Yi Q, Zinman B, Dinneen SF, Hoogwerf B, Hallé JP, Young J, Rashkow A, Joyce C, Nawaz S, Yusuf S., HOPE Study Investigators. Albuminuria and risk of cardiovascular events, death, and heart failure in diabetic and nondiabetic individuals. JAMA. 2001 Jul 25;286(4):421-6.

Emerging Risk Factors Collaboration. Kaptoge S, Di Angelantonio E, Lowe G, Pepys MB, Thompson SG, Collins R, Danesh J. C-reactive protein concentration and risk of coronary heart disease, stroke, and mortality: an individual participant meta-analysis. Lancet. 2010 Jan 09;375(9709):132-40.

Pearson TA, Mensah GA, Alexander RW, Anderson JL, Cannon RO, Criqui M, Fadl YY, Fortmann SP, Hong Y, Myers GL, Rifai N, Smith SC, Taubert K, Tracy RP, Vinicor F., Centers for Disease Control and Prevention. American Heart Association. Markers of inflammation and cardiovascular disease: application to clinical and public health practice: A statement for healthcare professionals from the Centers for Disease Control and Prevention and the American Heart Association. Circulation. 2003 Jan 28;107(3):499-511.

Trepanowski JF, Ioannidis JPA. Perspective: Limiting Dependence on Nonrandomized Studies and Improving Randomized Trials in Human Nutrition Research: Why and How. Adv Nutr. 2018 Jul 01;9(4):367-377.

Ioannidis JP. Implausible results in human nutrition research. BMJ. 2013 Nov 14;347:f6698.

Dunbar SB, Khavjou OA, Bakas T, Hunt G, Kirch RA, Leib AR, Morrison RS, Poehler DC, Roger VL, Whitsel LP., American Heart Association. Projected Costs of Informal Caregiving for Cardiovascular Disease: 2015 to 2035: A Policy Statement From the American Heart Association. Circulation. 2018 May 08;137(19):e558-e577.

Lloyd-Jones DM, Larson MG, Beiser A, Levy D. Lifetime risk of developing coronary heart disease. Lancet. 1999 Jan 09;353(9147):89-92.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491
Libby P, Ridker PM, Hansson GK. Progress and challenges in translating the biology of atherosclerosis. Nature. 2011 May 19;473(7347):317-25.
Davies MJ, Woolf N, Rowles PM, Pepper J. Morphology of the endothelium over atherosclerotic plaques in human coronary arteries. Br Heart J. 1988 Dec;60(6):459-64.
McGill HC, McMahan CA, Zieske AW, Tracy RE, Malcom GT, Herderick EE, Strong JP. Association of Coronary Heart Disease Risk Factors with microscopic qualities of coronary atherosclerosis in youth. Circulation. 2000 Jul 25;102(4):374-9.
Sata M, Saiura A, Kunisato A, Tojo A, Okada S, Tokuhisa T, Hirai H, Makuuchi M, Hirata Y, Nagai R. Hematopoietic stem cells differentiate into vascular cells that participate in the pathogenesis of atherosclerosis. Nat Med. 2002 Apr;8(4):403-9.
Stary HC, Chandler AB, Dinsmore RE, Fuster V, Glagov S, Insull W, Rosenfeld ME, Schwartz CJ, Wagner WD, Wissler RW. A definition of advanced types of atherosclerotic lesions and a histological classification of atherosclerosis. A report from the Committee on Vascular Lesions of the Council on Arteriosclerosis, American Heart Association. Circulation. 1995 Sep 01;92(5):1355-74.
Schoenhagen P, Ziada KM, Vince DG, Nissen SE, Tuzcu EM. Arterial remodeling and coronary artery disease: the concept of "dilated" versus "obstructive" coronary atherosclerosis. J Am Coll Cardiol. 2001 Aug;38(2):297-306.
Thaulow E, Erikssen J, Sandvik L, Erikssen G, Jorgensen L, Cohn PF. Initial clinical presentation of cardiac disease in asymptomatic men with silent myocardial ischemia and angiographically documented coronary artery disease (the Oslo Ischemia Study). Am J Cardiol. 1993 Sep 15;72(9):629-33.
Yew KS, Cheng E. Acute stroke diagnosis. Am Fam Physician. 2009 Jul 01;80(1):33-40.
Kreatsoulas C, Shannon HS, Giacomini M, Velianou JL, Anand SS. Reconstructing angina: cardiac symptoms are the same in women and men. JAMA Intern Med. 2013 May 13;173(9):829-31.
Kirchberger I, Meisinger C, Heier M, Kling B, Wende R, Greschik C, von Scheidt W, Kuch B. Patient-reported symptoms in acute myocardial infarction: differences related to ST-segment elevation: the MONICA/KORA Myocardial Infarction Registry. J Intern Med. 2011 Jul;270(1):58-64.
Khafaji HA, Suwaidi JM. Atypical presentation of acute and chronic coronary artery disease in diabetics. World J Cardiol. 2014 Aug 26;6(8):802-13.
Robson J, Ayerbe L, Mathur R, Addo J, Wragg A. Clinical value of chest pain presentation and prodromes on the assessment of cardiovascular disease: a cohort study. BMJ Open. 2015 Apr 15;5(4):e007251.
Kannel WB, Abbott RD. Incidence and prognosis of unrecognized myocardial infarction. An update on the Framingham study. N Engl J Med. 1984 Nov 01;311(18):1144-7.
Swap CJ, Nagurney JT. Value and limitations of chest pain history in the evaluation of patients with suspected acute coronary syndromes. JAMA. 2005 Nov 23;294(20):2623-9.
Siket MS, Edlow J. Transient ischemic attack: an evidence-based update. Emerg Med Pract. 2013 Jan;15(1):1-26.
Hand PJ, Haisma JA, Kwan J, Lindley RI, Lamont B, Dennis MS, Wardlaw JM. Interobserver agreement for the bedside clinical assessment of suspected stroke. Stroke. 2006 Mar;37(3):776-80.
Goldstein LB, Simel DL. Is this patient having a stroke? JAMA. 2005 May 18;293(19):2391-402.
Searls DE, Pazdera L, Korbel E, Vysata O, Caplan LR. Symptoms and signs of posterior circulation ischemia in the new England medical center posterior circulation registry. Arch Neurol. 2012 Mar;69(3):346-51.
Hirsch AT, Criqui MH, Treat-Jacobson D, Regensteiner JG, Creager MA, Olin JW, Krook SH, Hunninghake DB, Comerota AJ, Walsh ME, McDermott MM, Hiatt WR. Peripheral arterial disease detection, awareness, and treatment in primary care. JAMA. 2001 Sep 19;286(11):1317-24.
Sontheimer DL. Peripheral vascular disease: diagnosis and treatment. Am Fam Physician. 2006 Jun 01;73(11):1971-6.
Harris C, Croce B, Cao C. Thoracic aortic aneurysm. Ann Cardiothorac Surg. 2016 Jul;5(4):407.
Aggarwal S, Qamar A, Sharma V, Sharma A. Abdominal aortic aneurysm: A comprehensive review. Exp Clin Cardiol. 2011 Spring;16(1):11-5.
Felner JM. An Overview of the Cardiovascular System. In: Walker HK, Hall WD, Hurst JW, editors. Clinical Methods: The History, Physical, and Laboratory Examinations. 3rd ed. Butterworths; Boston: 1990.
Budoff MJ, Achenbach S, Blumenthal RS, Carr JJ, Goldin JG, Greenland P, Guerci AD, Lima JA, Rader DJ, Rubin GD, Shaw LJ, Wiegers SE., American Heart Association Committee on Cardiovascular Imaging and Intervention. American Heart Association Council on Cardiovascular Radiology and Intervention. American Heart Association Committee on Cardiac Imaging, Council on Clinical Cardiology. Assessment of coronary artery disease by cardiac computed tomography: a scientific statement from the American Heart Association Committee on Cardiovascular Imaging and Intervention, Council on Cardiovascular Radiology and Intervention, and Committee on Cardiac Imaging, Council on Clinical Cardiology. Circulation. 2006 Oct 17;114(16):1761-91.
Kavousi M, Leening MJ, Nanchen D, Greenland P, Graham IM, Steyerberg EW, Ikram MA, Stricker BH, Hofman A, Franco OH. Comparison of application of the ACC/AHA guidelines, Adult Treatment Panel III guidelines, and European Society of Cardiology guidelines for cardiovascular disease prevention in a European cohort. JAMA. 2014 Apr 09;311(14):1416-23.
Yancy CW, Jessup M, Bozkurt B, Butler J, Casey DE, Colvin MM, Drazner MH, Filippatos GS, Fonarow GC, Givertz MM, Hollenberg SM, Lindenfeld J, Masoudi FA, McBride PE, Peterson PN, Stevenson LW, Westlake C. 2017 ACC/AHA/HFSA Focused Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines and the Heart Failure Society of America. Circulation. 2017 Aug 08;136(6):e137-e161.
Carvalho-Pinto BP, Faria CD. Health, function and disability in stroke patients in the community. Braz J Phys Ther. 2016 Jul-Aug;20(4):355-66.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

Bovim MR, Askim T, Lydersen S, Fjærtoft H, Indredavik B. Complications in the first week after stroke: a 10-year comparison. BMC Neurol. 2016 Aug 11;16(1):133.

Criqui MH, Langer RD, Fronek A, Feigelson HS, Klauber MR, McCann TJ, Browner D. Mortality over a period of 10 years in patients with peripheral arterial disease. N Engl J Med. 1992 Feb 06;326(6):381-6.

Aronow WS. Peripheral arterial disease of the lower extremities. Arch Med Sci. 2012 May 09;8(2):375-88.

Ponikowski P, Voors AA, Anker SD, Bueno H, Cleland JG, Coats AJ, Falk V, González-Juanatey JR, Harjola VP, Jankowska EA, Jessup M, Linde C, Nihoyannopoulos P, Parissis JT, Pieske B, Riley JP, Rosano GM, Ruilope LM, Ruschitzka F, Rutten FH, van der Meer P., Authors/Task Force Members. Document Reviewers. 2016 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure: The Task Force for the diagnosis and treatment of acute and chronic heart failure of the European Society of Cardiology (ESC). Developed with the special contribution of the Heart Failure Association (HFA) of the ESC. Eur J Heart Fail. 2016 Aug;18(8):891-975.

Sandhoff BG, Kuca S, Rasmussen J, Merenich JA. Collaborative cardiac care service: a multidisciplinary approach to caring for patients with coronary artery disease. Perm J. 2008 Summer;12(3):4-11

Lopez, E. O., Ballard, B. D., & Jan, A. (2023). Cardiovascular disease. In StatPearls [Internet]. StatPearls Publishing.

Journal of Ecohumanism
2024
Volume: 3, No: 8, pp. 13795 – 13809
ISSN: 2752-6798 (Print) | ISSN 2752-6801 (Online)
https://ecohumanism.co.uk/joe/ecohumanism
DOI: https://doi.org/10.62754/joe.v3i8.6491

أمراض القلب والأوعية الدموية: نظرة عامة على استراتيجيات العلاج وأدوات التشخيص

المستخلص:

الخلفية :لا تزال أمراض القلب والأوعية الدموية (CVD) سببًا رئيسيًا للممراضة والوفيات عالميًا، وتشمل أمراض الشريان التاجي (CAD)، وأمراض الأوعية الدماغية، وأمراض الشرايين الطرفية(PAD) ، وتصلب الشرايين الأبهري. يعد تصلب الشرايين، الناتج عن عوامل خطر مثل خلل الدهون، وارتفاع ضغط الدم، والعادات الحياتية، السبب الرئيسي للعديد من هذه الأمراض. ورغم التقدم في التشخيص والعلاج، فإن انتشار أمراض القلب والأوعية الدموية يستمر في الارتفاع، مما يستدعي استراتيجيات فعالة للوقاية والإدارة.

الهدف :يهدف هذا المقال إلى تقديم نظرة شاملة حول أمراض القلب والأوعية الدموية، مع التركيز على الفيزيولوجيا المرضية، وعلم الأوبئة، وأدوات التشخيص، واستراتيجيات العلاج. كما يسلط الضوء على أهمية تعديل عوامل الخطر، والكشف المبكر، والتعاون المهني بين الصيادلة، وأخصائي علم الأمراض السريرية، والتحاليل الطبية، والعاملين في علم الأوبئة، وأخصائي السجلات الطبية لتحسين نتائج المرضى.

الطرق :يعتمد هذا الاستعراض على الأدلة المستخلصة من دراسات بارزة مثل دراستي INTERHEART و Framingham Heart، بالإضافة إلى التوجيهات الحديثة من جمعية القلب الأمريكية .(AHA) كما يناقش دور أدوات التشخيص مثل تخطيط القلب الكهربائي، والإنزيمات القلبية، وتقنيات التصوير المتقدمة، بالإضافة إلى الأساليب الناشئة مثل قياس الكالسيوم في الشرايين التاجية (CAC scoring).

النتائج :تتأثر أمراض القلب والأوعية الدموية بعوامل خطر قابلة للتعديل (مثل التدخين، والخمول البدني) وغير قابلة للتعديل (مثل العمر، والتاريخ العائلي). يُعد الكشف المبكر وإدارة تصلب الشرايين ضروريًا للوقاية. أظهرت نماذج الرعاية التعاونية بين التخصصات تحسنًا في نتائج المرضى، خاصة في قصور القلب وأمراض الشريان التاجي، مما أدى إلى تقليل الوفيات وإعادة الدخول إلى المستشفيات. كما تقدم العلاجات الحديثة، مثل مثبطات PCSK9 ومثبطاتSGLT2 ، إمكانات واعدة في علاج أمراض القلب والأوعية الدموية.

الخلاصة :تتطلب مكافحة أمراض القلب والأوعية الدموية نهجًا متعدد الجوانب يشمل تعديلات نمط الحياة، والتدخلات الدوائية، والتعاون بين التخصصات .كما تعد المبادرات الصحية العامة وتثقيف المرضى ضرورية للحد من العبء العالمي لهذه الأمراض.

الكلمات المفتاحية :أمراض القلب والأوعية الدموية، تصلب الشرايين، عوامل الخطر، الوقاية، الرعاية التعاونية، أدوات التشخيص، استراتيجيات العلاج.