

GENERAL CONCEPT OF RHEUMATIC HEART DISEASE, CORONARY HEART DISEASE, AND CEREBROVASCULAR DISEASE

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Abstract: *CVD deaths are a significant concern, with over four out of five deaths due to heart attacks and strokes. Rheumatic fever, an inflammatory condition, can lead to rheumatic heart disease, a collection of acute and long-term cardiac conditions. Coronary heart disease, or coronary artery disease (CAD), is characterized by inflammation and fatty deposits along the coronary arteries. Cerebrovascular diseases, such as strokes, can cause blood vessel diseases in the brain, resulting in vascular complications.*

Key words: *CVD, rheumatic heart disease, coronary heart disease, cerebrovascular disease, treatments.*

With an estimated 17.9 million deaths annually, cardiovascular diseases (CVDs) are the world's leading cause of mortality. A collection of heart and blood vessel ailments known as CVDs includes conditions including rheumatic heart disease, coronary heart disease, and cerebrovascular disease. More than four out of five CVD deaths are due to heart attacks and strokes, and one third of these deaths occur prematurely in those under 70 years of age.

Rheumatic fever

An infection with the streptococcal bacterium can cause rheumatic fever, an inflammatory condition. Initially, it usually presents as an untreated case of scarlet fever or strep throat. Inflammation of connective tissues can result from rheumatoid arthritis in the skin, joints, brain, and heart, among other parts of the body. A collection of acute and long-term cardiac conditions brought on by rheumatic fever are together referred to as rheumatic heart disease. It frequently happens ten to twenty years after the original ailment. Rheumatic fever-induced inflammation can harm the heart in its entirety. This covers the valves, endocardium, and pericardium. Among the cardiac issues connected to rheumatic fever are: heart valve disease, heart block, endocarditis, and pericarditis. Heart valve damage is a typical complication of rheumatic heart disease. The development of valve damage or the onset of symptoms may occur years after an incident of rheumatic fever. Any heart valve can be impacted by rheumatic fever, but the mitral valve—which sits between the left side of the heart's two chambers—is the one that is most frequently affected. The injury may result in cardiac muscle damage, valve regurgitation, or stenosis. Blood flow is restricted by a narrowing of the valve, known as valve stenosis. When blood escapes through a valve in the opposite direction of its intended flow, it is known as valve regurgitation. Rheumatic fever can cause damage to the heart muscle due to its inflammation. The injury may impair the heart's capacity to pump blood. The degree of

damage to the heart valves will largely determine the course of treatment. Surgery to replace or repair a severely damaged valve may be necessary in extreme circumstances. The best course of action is to avoid rheumatic fever. Most strep infections may be treated with antibiotics, which also prevent rheumatic fever from occurring. Anti-inflammatory medications can help minimize inflammation and minimize the chance of cardiac problems. Additional medications could be required to treat heart failure. Following a rheumatic fever, patients are frequently prescribed antibiotics on a daily or monthly basis, potentially for the rest of their lives, in an effort to reduce the risk of reinfection and subsequent heart damage. Steroids, non-steroidal anti-inflammatory drugs, or aspirin may be used to decrease inflammation.

Coronary heart disease

Coronary heart disease, or coronary artery disease (CAD), is characterized by inflammation and the buildup of and fatty deposits along the innermost layer of the coronary arteries. Throughout life, the fatty deposits thicken and increase, often starting in childhood. Atherosclerosis, a thickening of the arteries, can reduce or obstruct the flow of blood to the heart. The bigger coronary arteries on the surface of the heart are impacted by coronary artery disease. The small arteries found inside the heart muscle are impacted by a different kind of heart disease known as coronary microvascular disease. Women are more likely than males to have coronary microvascular disease. Depending on the kind, coronary heart disease has different causes. A waxy substance called cholesterol accumulates inside the coronary artery lining and forms plaque, which is the main cause of coronary artery disease. The heart's major arteries may become completely or partially blocked by this plaque accumulation. Damage to the inner walls of the tiny blood arteries of the heart results in coronary microvascular disease. With medicine and a heart-healthy lifestyle, coronary heart disease can be avoided for the majority of people. There are three types of coronary heart disease, including: obstructive coronary artery disease, nonobstructive coronary artery disease, and spontaneous coronary artery dissection. The symptoms of coronary heart disease (CHD) can be managed, and the chance of developing new issues is decreased, with treatment. A mix of medication, lifestyle modifications, and occasionally surgery can be used to effectively manage congestive heart failure. The symptoms of congestive heart failure can be lessened and heart function can be enhanced with the appropriate care.

Cerebrovascular diseases

Cerebrovascular diseases may cause a reduction in blood flow to your brain or bleeding in a part of your brain. Both conditions are generally referred to as "strokes." Blood vessel diseases in the brain can lead to strokes, as well as many other vascular conditions. Two sets of arteries—the carotid and vertebral arteries—allow the heart to pump blood up to the brain. When you take your pulse directly under your jaw, it comes from the carotid arteries, which are situated at the front of the neck. The external carotid arteries bring blood to the face, whereas the internal carotid arteries enter the skull, where they divide from the carotid arteries around the top of the neck. The internal carotid arteries split into multiple smaller arteries, including the ophthalmic, posterior communicating, and anterior choroidal arteries, as well as two big arteries, the anterior cerebral and middle

cerebral arteries, inside the skull. The front two thirds of the brain are supplied with blood via these arteries. It is impossible to feel the vertebral arteries from the outside as they run the length of the spinal column. Near the base of the skull, the brain stem is where the vertebral arteries come together to form a single basilar artery. The rear portion of the brain is supplied by the posterior cerebellar and posterior meningeal arteries, which originate from numerous tiny branches that the vertebrobasilar system delivers into the brain stem. Blood leaves the brain via the jugular and other veins. The health of these two sets of main arteries is critical since the brain depends on them for blood flow. An accumulation of fat called plaque can obstruct the carotid arteries, which is frequently the root cause of an ischemic stroke. A hemorrhagic stroke occurs when an artery inside the brain or on its surface bursts or leaks, resulting in bleeding and damage to the brain and its surrounding areas. It is critical that the brain's normal blood flow and oxygen supply are restored as quickly as possible, regardless of the underlying cause or condition. Within minutes, the impacted brain cells either die or sustain damage from a lack of oxygen and vital nutrients. When brain cells die, they cannot be replaced, and severe harm can happen that can occasionally lead to mental, cognitive, and physical impairments. Cerebrovascular conditions include: Aneurysms, Arteriovenous malformations (AVM), Cerebral cavernous malformations (CCM), Arteriovenous Fistula (AVF), Carotid-Cavernous Fistula, Carotid Stenosis, TIA and Stroke. Optimal treatment of these varied cerebrovascular disorders requires experience with a wide spectrum of techniques, including complex cranial microsurgery, and minimally invasive techniques such as endovascular surgery and radiosurgery. Whatever the condition and cause, it is our goal to maintain or restore proper blood flow and oxygen delivery to the brain as soon as possible.

References:

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