

Concept Map Template

Primary Diagnosis: Endocarditis

1. Describe the pathophysiology of the primary diagnosis in your own words. What are the patient's risk factors for this diagnosis? Pathophysiology of Primary Diagnosis Endocarditis begins with a damaged area on the endocardial surface. The damage on the endocardial surfaces can be from things such as a congenital heart disease, valvular heart disease, trauma from a procedure, or the presence of a prosthetic valve. The damaged area now has an exposed endothelial basement membrane. When this membrane becomes exposed, a response is triggered that stimulates the formation of a sterile thrombus and leads to inflammation. A microorganism in the blood then clings to this damaged area using adhesions. When the microorganism clings to the damaged area, infective vegetations form. The vegetations occur because the microorganism penetrated the sterile thrombus that has formed previously, leading to increased fibrin formation. These vegetations can break off and become an embolus, which will lead to other complications along with the signs and symptoms of endocarditis. The infection and inflammation in endocarditis most commonly occurs in the cardiac valves. The most common valves involved are the aortic and mitral valves. However, if the patient is an IV drug user, the most common valves are the tricuspid and pulmonary valves. Endocarditis can be acute, subacute, or chronic.

Causes

There are several different causes of endocarditis. Dental or surgical procedures can introduce bacteria into the blood stream. Breaks in the epithelial barriers, such as a cut on a cutaneous surface can also cause endocarditis because the open wound gives microorganisms a way to enter the blood stream if not properly cared for. IV drug users can get endocarditis because if they have poor hygiene, microorganisms get into the blood stream when the patient injects themselves with the drug. The most causative agents of infection include *Staphylococcus aureus*, alpha-hemolytic streptococci, enterococci, viruses, fungi, rickettsia, and parasites. *Pseudomonas aeruginosa* and *Serratia marcescens* are more common among IV drug users, Fungal microorganisms are more common in patients who have undergone open-heart surgery.

Risk Factors (genetic/ethnic/physical)

Risk factors for endocarditis include advanced age, presence of a pacemaker, diabetes, and residual valve injury. Other risk factors are long-term indwelling IV catheterization, IV drug use, hemodialysis, valvular heart disease, ventricular septal defect, rheumatic heart disease, and the presence of a prosthetic heart valve. Also, if a patient has had a dental procedure within the past one to six months, there is an increased risk of endocarditis. Recent GI or GU procedures or surgeries place patients an increased risk. A gene that has been shown to be associated with endocarditis is the polymorphism TLR2 R753Q. Being African American over the age of 60 increases the risk of endocarditis. Endocarditis occurs more in men than women.