inflammation along venipuncture sites; (3) observation for complications, including embolism and HF; and (4) education regarding the importance of follow-up visits for cardiac evaluation, echocardiographic monitoring, and blood cultures. Some children may need preparation for surgery and later, postoperative care.

Acute Rheumatic Fever and Rheumatic Heart Disease

Acute rheumatic fever (ARF) is a result of an abnormal immune response to a group A strep (GAS) infection, usually pharyngitis, in a genetically susceptible host (Marijon, Mirabel, Celermajer, et al, 2012). It occurs most often in late school-age children and adolescents and is rare in adults. ARF is a self-limited illness that involves the joints, skin, brain, and heart but cardiac valve damage, which is referred to as **rheumatic heart disease (RHD)**, the most significant complication of ARF, occurs in more than half the cases. The mitral valve is most often affected. In developed countries, ARF and RHD have become uncommon. However, in developing countries, because of overcrowded living conditions and poor access to medical care, ARF and resulting RHD is the leading cause of HF in young people (Remenyi, Carapetis, Wyber, et al, 2013).

Etiology

Strong evidence supports a relationship between upper respiratory tract infection with GAS and subsequent development of ARF (usually within 2 to 6 weeks). Prevention or treatment of GAS infection prevents ARF. If the GAS infection is untreated, antibodies are produced to fight the infection, which can also act against the heart valves causing damage. If children have one strep infection, they are at greater risk for repeated infections and recurrent infections cause the cumulative valve damage of RHD.

Diagnostic Evaluation

Diagnosis is based on a set of guidelines, and later revisions, known as the *modified Jones criteria* (Guidelines for the diagnosis of rheumatic fever, 1992; Ferrieri and Jones Criteria Working Group, 2002). The updated Jones criteria suggest that the presence of two