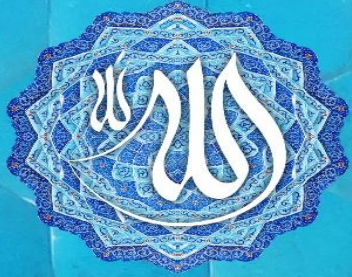


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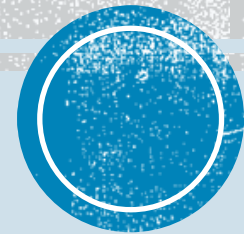
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ACUTE RHEUMATIC FEVER

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Etiology and Epidemiology

- It is most common in children 6–15 years of age.
- It is due to an immunologic reaction that is a delayed sequela of group A β -hemolytic streptococcal infections of the pharynx.
- A family history of rheumatic fever and lower socioeconomic status are additional factors.



Clinical Manifestations

- Because no clinical or laboratory finding is pathognomonic for acute rheumatic fever, Acute rheumatic fever is diagnosed using the clinical and laboratory findings of the **revised Jones criteria**



Jones criteria for diagnosis of acute rheumatic fever

- Major Criteria
- Minor Criteria
- Supportive evidence
- Low-Risk population
- Moderate/High-Risk population



**SUPPORTING EVIDENCE OF ANTECEDENT GROUP
A STREPTOCOCCAL INFECTION**

MAJOR MANIFESTATIONS

Carditis
Polyarthritits
Erythema marginatum
Subcutaneous nodules
Chorea

MINOR MANIFESTATIONS

Clinical features:
Arthralgia
Fever
Laboratory features:
Elevated acute-phase reactants:
Erythrocyte sedimentation rate
C-reactive protein
Prolonged P-R interval

Positive throat culture or rapid streptococcal antigen test
Elevated or increasing streptococcal antibody titer



-
- **Supporting evidence of antecedent group A streptococcal infection**
 - **Positive throat culture or rapid streptococcal antigen test Elevated or increasing streptococcal antibody titer**
 - +ve Culture 10 - 20 %
 - Antistreptococcal antibody: ASO titer &/or anti-DNase B, antihyaluronidase



Major Jones criteria for diagnosis of acute rheumatic fever

- **Polyarthriti**s
 - Common; swelling, limited motion, tender, erythema
 - Migratory; involves large joints but rarely small or unusual joints, such as vertebrae



Major Jones criteria for diagnosis of acute rheumatic fever

- **Carditis**
 - Common; pancarditis, valves, pericardium, myocardium
 - Tachycardia greater than explained by fever;
 - New murmur of mitral or aortic insufficiency;
 - Carey-Coombs mid-diastolic murmur;
 - Heart failure
 - Cardiomegaly



Major Jones criteria for diagnosis of acute rheumatic fever

- **Chorea (Sydenham disease)**
 - **Uncommon; manifests long after infection has resolved; more common in females; antineuronal antibody positive**



Chorea (Sydenham disease)

Video 1



Major Jones criteria for diagnosis of acute rheumatic fever

- Erythema marginatum
 - Uncommon; pink macules on trunk and proximal extremities, evolving to serpiginous border with central clearing; evanescent, elicited by application of local heat; nonpruritic



ARF - Erythema Marginatum



© ACR

Circinate
Evanescient
Nonpruritic



Major Jones criteria for diagnosis of acute rheumatic fever

- **Subcutaneous nodules**
 - **Uncommon; associated with repeated episodes and severe carditis; located over extensor surface of elbows, knees, knuckles, and ankles, or scalp and spine; firm, nontender**



ARF - Subcutaneous nodules



ARF - Subcutaneous nodules



Near tendons or over a bony surface
or prominence



Minor Jones criteria for diagnosis of acute rheumatic fever

- **Clinical features:**
 - Arthralgia
 - Fever
- **Laboratory features:**
 - Elevated acute-phase reactants: ESR / C-reactive protein
 - Prolonged P-R interval



Low-Risk population **vs.** Moderate/High-Risk population

- Low-Risk population is defined as
 - ARF incidence <2 per 100,000 school-age children per year, or all-age rheumatic heart disease (RHD) prevalence of <1 per 1,000 population.
- Moderate/High-Risk population is defined as
 - ARF incidence >2 per 100,000 school-age children per year, or all-age RHD prevalence of >1 per 1,000 population.



Low-Risk population **VS.** Moderate/High-Risk population

Low-Risk population

- Major criteria:
 - Arthritis refers only to polyarthritis
- Minor criteria:
 - Fever $>38.5^{\circ}\text{C}$
 - Polyarthralgia
 - ESR >60 mm/hr

Moderate/High-Risk population

- Major criteria:
 - Arthritis refers to polyarthritis, monoarthritis or polyarthralgia
- Minor criteria:
 - Fever $>38^{\circ}\text{C}$
 - Monoarthralgia
 - ESR >30 mm/h



Acute Rheumatic Fever (ARF)

- **Initial attack:**

- 2 major manifestations, or 1 major and 2 minor manifestations, **plus** evidence of recent GAS infection.

- **Recurrent attack:**

- 2 major, or 1 major and 2 minor, or 3 minor manifestations (the latter only in the Moderate/High-Risk population), **plus** evidence of recent GAS infection



Treatment and Prevention

- Management of acute rheumatic fever consists of **benzathine penicillin** to eradicate the β -hemolytic streptococcus,
- antiinflammatory therapy with salicylates , and bed rest



Prevention

- Long-term penicillin prophylaxis , preferably with intramuscular benzathine penicillin G, 1.2 million U every 28 days, is required.
- Oral regimens for prophylaxis generally are not as effective.



Prognosis

- The prognosis of acute rheumatic fever depends on the degree of permanent cardiac damage.
- Cardiac involvement may resolve completely, especially if it is the first episode and the prophylactic regimen is followed. The severity of cardiac involvement worsens with each recurrence of rheumatic fever.



Pearls for Practitioners

- Rheumatic fever remains an important, preventable cause of cardiac disease worldwide.
- Diagnosis of rheumatic fever is made using the clinical and laboratory findings of the revised Jones criteria.

