Rheumatic Fever

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Acute rheumatic fever is a systemic disease of childhood, often recurrent that follows group A beta hemolytic streptococcal infection

It is an inflammatory disease of connective tissue, primarily involving heart, blood vessels, joints, and CNS

Epidemiology

1. Ages 5-15 years are most susceptible
2. Girls > boys
3. Common in 3rd world countries
4. Environmental factors-- overcrowding, poor sanitation, poverty,
5. Incidence more during winter & early spring

Pathogenesis

- Delayed immune response to infection with group. A beta hemolytic streptococci.
- After a latent period of 1-3 weeks, antibody induced immunological damage occur to heart valves, joints, subcutaneous tissue & basal ganglia of brain

Clinical Features

The symptoms of rheumatic fever usually start about one to five weeks after your child has been infected with streptococcus bacteria. The following are the most common symptoms of rheumatic fever. However, each child may experience symptoms differently. Symptoms may include:

- Joint inflammation. This includes swelling, tenderness and redness over multiple joints. The joints affected are usually the

larger joints in the knees or ankles. The inflammation "moves" from one joint to another over several days.

- Small nodules or hard, round bumps under the skin
- A change in your child's neuromuscular movements. (This is usually noted by a change in your child's handwriting and may also include jerky movements.)
- Rash. A pink rash with odd edges that is usually seen on the trunk of the body or arms and legs.
- Fever
- Weight loss
- Fatigue
- Stomach pains
- Symptoms of rheumatic fever may resemble other medical conditions. Always consult a doctor for a diagnosis.

Diagnosis

The diagnosis of rheumatic fever can be made when two of the major criteria, or one major criterion plus two minor criteria, are present along with evidence of a streptococcal infection.

There is no definitive test to diagnose rheumatic fever. Blood work is also usually done to assist in making a diagnosis. Child's doctor may also order an electrocardiogram (a test that records the electrical activity of the heart, shows abnormal rhythms — arrhythmias or dysrhythmias — and detects heart muscle damage of the heart) as part of the diagnostic process for rheumatic fever.

A throat culture may also be done to determine if the child tests positive for streptococcus bacteria, although during the initial phase of rheumatic fever, the throat culture is often negative.

Major criteria include:

1.Arthritis

- involving major joints
- Commonly involved joints-knee, ankle, elbow & wrist
- Occur in 80%,involved joints are finely tender
- Arthritis do not progress to chronic disease

2.Carditis

- Manifest as (endocarditis, myocarditis and pericarditis),occur in 40-50% of cases
- Carditis is the only manifestation of rheumatic fever that leaves a permanent damage to the organ

3. Chorea

- Occur in 5-10% of cases
- Clinically manifest deterioration of handwriting, emotional liability or grimacing of face

4. Erythema Marginatum

- Occur in <5%.
- Pale center with red irregular margin
- More on trunks & limbs & non-itchy
- Often associated with chronic carditis

5. Subcutaneous nodules

- Occur in 10%
- Painless, pea-sized, palpable nodules
- Mainly over extensor surfaces of joints, spine, scapulae & scalp

Minor criteria include:

- Fever
- Arthralgia (pain in one or more joints)
- Previous rheumatic carditis (inflammation of the heart)
- Changes in the electrocardiogram pattern
- Abnormal sedimentation rate or C-reactive protein (laboratory tests performed on blood)

Laboratory Findings

- High ESR
- Anemia, leucocytosis
- Elevated C-reactive protien
- Throat culture
- ECG

- 2D Echo cardiography- valve edema, mitral regurgitation, lift atrium & lift ventricle dilatation, pericardial effusion, decreased contractility

What is the treatment for rheumatic fever in children?

Specific treatment for rheumatic fever will be determined by your child's doctor based on:

- Child's overall health and medical history
- Child's tolerance for specific medications, procedures or therapies
- Expectations for the course of the reaction
- Children with rheumatic fever are often treated in the hospital, depending on the severity of the disease.

Treatment for rheumatic fever, in most cases, combines the following three approaches:

- **Treatment for streptococcus infection.** The immediate goal is to treat the infection with antibiotics. This is done even if the throat culture is negative. Following the initial treatment for strep infection, your child may continue to receive monthly doses of antibiotics to help prevent further complications.

- **Anti-inflammatory medications.** Based on the severity of your child's condition, your child's doctor may prescribe medications to help decrease the swelling that occurs in the heart muscle, as well as to relieve joint pain.

- **Bed rest.** The length of bed rest will be determined by your child's doctor, based on the severity of your child's disease and the involvement of the heart and joints. Bed rest may range from two to 12 weeks.

Nursing Management

Nursing care of a child with rheumatic fever include:

Nursing Assessment

Nursing assessment for a child with rheumatic fever are as follows:

- **History.** Obtain a complete up-to-date history from the child and the caregiver; ask about a recent sore throat or upper respiratory infection; find out when the symptoms began, the extent of the illness, and what if any treatment was obtained.
- **Physical exam.** Begin with a careful review of all systems, and note the child's physical condition; observe for any signs that may be classified as major or minor manifestations; in the physical exam, observe for elevated temperature and pulse, and carefully examine for erythema marginatum, subcutaneous nodules, swollen or painful joints, or signs of chorea.

Nursing Diagnoses

Based on the assessment data, the major nursing diagnoses are:

- **Acute pain** related to joint pain when extremities are touched or moved.
- **Deficient diversional activity** related to prescribed bed rest.
- **Activity intolerance** related to carditis or arthralgia.
- **Risk for injury** related to chorea.
- **Risk for noncompliance** with prophylactic drug therapy related to financial or emotional burden of lifelong therapy.
- **Deficient knowledge** of caregiver related to the condition, need for long-term therapy, and risk factors.

Nursing Care Planning and Goals

Acute Rheumatic Fever Nursing Care Plans

The major nursing care planning goals for rheumatic fever are:

- Reducing pain.
- Providing diversional activities and sensory stimulation.
- Conserving energy.
- Preventing injury.

Nursing Interventions

Nursing interventions for a child with rheumatic fever include:

- **Provide comfort and reduce pain.** Position the child to reduce joint pain; warm baths and gentle range-of-motion exercises help to alleviate some of the joint discomforts; use pain indicator scales with children so they are able to express the level of their pain.
- **Provide diversional activities and sensory stimulation.** For those who do not feel very ill, bed rest can cause distress or resentment; be creative in finding diversional activities that allow bed rest but prevent restlessness and boredom, such as a good book; quiet games can provide some entertainment, and plan all activities with the child's developmental stage in mind.
- **Promote energy conservation.** Provide rest periods between activities to help pace the child's energies and provide for maximum comfort; if the child has chorea, inform visitors that the child cannot control these movements, which are as upsetting to the child as they are to others.
- **Prevent injury.** Protect the child from injury by keeping the side rails up and padding them; do not leave a child with chorea unattended in a wheelchair, and use all appropriate safety measures.

Evaluation

Goals are met as evidenced by:

- Reducing pain.
- Providing diversional activities and sensory stimulation.
- Conserving energy.
- Preventing injury.