

**RHEUMATIC HEART DISEASE IN CHILDREN.\***

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Children with rheumatic fever should have absolute rest and skilled nursing care, a strict regimen during convalescence, and follow-up supervision to prevent recurrence.

Rheumatism in acute and chronic forms has been described in literature since the seventeenth century, but it was not until the latter part of the eighteenth century that the relation to heart disease was first pointed out.

It was recognised that this disease was most often seen in childhood, and that it involved the joints and fibrous tissues of the body, such as tendons and periosteum; the brain, in certain cases; and the heart, in the form of endocarditis, myocarditis, and pericarditis. The relation of rheumatism and chorea was not noted until about the middle of the nineteenth century.

**Etiology.**

The etiology as to the organism causing the infection is still in doubt. Theories as to filtrable virus, streptococci, and other causative organisms are still unproven. It seems rather certain that there are many predisposing factors having to do with the development of the rheumatic infection in children. Climate seems to have an important bearing. It has been observed for years that rheumatism in the form of acute rheumatic fever is a disease of the colder, damper climates. The rheumatic infection is also a disease of the lower economic group, being rare among the well-to-do classes. Heredity, or at least a family predisposition, is an important factor. The disease seems to attack certain families in which several members have developed the condition, with perhaps a father or mother who had the rheumatic infection in early life.

Poor housing and concomitant social conditions also seem to be predisposing factors. Crowded living quarters, poor ventilation, lack of sunshine, dampness, crowded sleeping quarters, poor hygiene, and poorly balanced diets with insufficient quantities of food to ensure proper growth and development are among the things noted in the social histories of these rheumatic individuals.

Seasons of the year seem to play a part. Most of the cases of rheumatic fever in the United States occur in the early spring and summer, from February to May, while in England the fall and winter are the two seasons when most of the cases occur.

Recurrent attacks of rheumatic fever in our children's clinics seem to follow acute infections, such as acute colds and sore throats. These usually follow exposure to cold, wet weather, and the usual chilling from damp clothing and wet feet. All of these predisposing causes are important from a nursing standpoint and it is here that the advice of the public health nurse in regard to the prevention and proper care of acute respiratory infections is most valuable.

**Heart Complications.**

It is safe to say that nearly 75 per cent. of all children having rheumatic fever develop some form of heart complication. This is usually in the form of endocarditis

causing a valvulitis. The valve most commonly involved is the mitral valve and the next most common is the aortic valve. These valves may be attacked individually or both may be involved together. The tricuspid and pulmonary valves are seldom affected. Perhaps there is always some myocardial involvement and very often there are some pericardial changes as well.

The pathology is usually found at the edges of the valves, resulting in thickening and deformity and also a gluing together at the lateral edges, progressing to a narrowing of the opening. This process is progressive, causing an insufficient valve and eventually a stenosis, and is in general the same in both the mitral and aortic valves. There seems to be no medicine that is of much value in slowing up this process of valve change. More important is building up in the patient a resistance to the infection that seems at least to slow up the development of the valve lesions. This is accomplished in the acute stage by absolute rest, good nourishing food, careful nursing until the patient is normal clinically, and continuance of treatment until all of the laboratory findings, such as blood count, blood sedimentation rate, and electrocardiograms, are normal. This convalescent period may take several weeks or months before the patient is back to normal well-being and weight, and the regimen of care should be strictly carried out. After this period of careful watching, the patient is gradually allowed to get back to normal living.

At St. Christopher's Hospital for Children, in Philadelphia, for the past seven years we have insisted that as soon as the patients are back to normal they begin to live a normal life, doing all the things that a normal child does, except extremely competitive games. This programme is carried out regardless of the type of valvular lesion, provided there is no functional disability. We find that by such a programme stronger, more normal individuals are developed with a better myocardium which will be able to carry on longer under any type of valvular handicap. At the same time, a better mental attitude is developed, both in parents and children.

While every child with a cold, sore throat, grippe, or any other respiratory infection should receive special care, such care is particularly important in the case of a rheumatic fever child. He should be put to bed; the family physician should be called; and arrangements should be made for carrying out the doctor's orders as to diet, fluid intake, and medication. The child should be kept in bed until the attack is over.

A follow-up of these patients is important. They should always be watched for any changes in the heart condition, or any new developments that might lead to another attack of rheumatism and thus to more heart damage. Parents are carefully instructed about the child's condition and about the many predisposing factors—especially infections of the upper respiratory tract. This instruction is also carried into the homes by the social service workers and the public health nurses, who from time to time are sent to visit the families. Some patients are seen in the clinic each month, some every three months, and many, with little heart damage, every six months.

**Children with Chorea.**

This same general programme is also carried out in the cases of heart disease following chorea. In general,

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