THE TREATMENT OF MITRAL DISEASE IN CHILDREN*

BY

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OF THE HEART

Mitral disease in children is a serious malady, and ranks in this country among the most important of killing diseases in childhood and adolescence. It is a disease of the school child, and is a principal cause of permanent invalidism among children of the poorer classes attending elementary schools. The State recognizes in juvenile rheumatism, the cause of the disease, a cardiac problem closely related to the environmental conditions associated with their growth and education. It has provided schools for physically defective children, which are available for the child with rheumatic heart disease. At these schools, with good medical supervision, the hours of study, transport, and other conditions of school life are regulated with a view to improving or maintaining their health and providing an education that will help them to earn a living.

Special convalescent homes have also been established for children in the London area with rheumatic heart disease requiring treatment before resuming their school life. The Metropolitan Asylums Board have recently transferred to the London County Council for this purpose one hundred beds at Queen Mary's Hospital, Carshalton, and at Highwood Hospital, Brentwood, and proposals have been accepted for increasing the number. Convalescent homes have been provided, and are controlled and managed by a charity organization working in association with the Board of Education. The Invalid Children's Aid Association, a pioneer in this form of institutional treatment, has two special convalescent homes for children with rheumatic heart affections: one with seventy-five beds for girls at West Wickham, Kent, and the other at Willesden, with twenty-two beds for boys. The Edgar Lee Home at Willesden was founded in 1919, and in June, 1930, 678 boys had been admitted for treatment. There is a matron in charge, assisted by a nurse, and a schoolmistress is provided by the Board of Education. A general practitioner, living in the neighbourhood, makes visits weekly, or oftener if necessary, and there are two consulting physicians. It has been my practice since 1919 to examine all the boys once a month, and make notes on their condition.

General Description of Selected Cases

It seems desirable, now that ten years have elapsed since the home was opened, to review the results of the treatment that has been carried on at this institution. For this purpose I have selected the first 100 boys admitted in the years 1919-22 with rheumatic heart disease, and have obtained the after-histories of all but six of these, after seven years in one group and eight years in the other. Their ages on admission were between 10 and 11 years. All had had rheumatism or chorea, and many were convalescent from a recent rheumatic infection. They were admitted from the general hospitals of the metropolitan area, or from the schools on the recommendation of the school medical officer. All but two of these boys had signs of a rheumatic infection of the heart.

- 57 were diagnosed as having mitral disease.
- 23 had signs of mitral stenosis.
- 14 had signs of mitral stenosis and aortic regurgitation.
- 4 had aortic regurgitation alone.
- 2 had no signs of valve disease.

Mitral disease in children is probably always associated with a rheumatic invasion of the myocardium, and is evidence of carditis. The symptoms in the early years are those of a general infection. At a later period in the advanced stages of the disease they fuse with, or are replaced by, symptoms of a failing myocardium. These children were not advanced cases of myocardial disease, and did not have, on admission to the home, signs of congestive heart failure. The heart, with a few exceptions, was enlarged in the mitral stenosis group; in the mitral systolic group there were no signs of cardiac enlargement in the majority of cases. They had symptoms and signs of a general infection, and our chief concern was to determine whether the infection was active or quiescent, for it was upon this decision that we based the treatment.

Signs of Active Rheumatic Infection

Pyrexia, pallor, loss of weight, nodules, and a rapid pulse rate were regarded as signs of an active infection. The length of treatment in the home averaged four and a half months; 20 per cent. were in a stage of active infection, and during a part of this time were kept in bed on this account. A temperature ranging from 99° to 99.6°, if not accompanied by loss of weight or a rapid pulse rate, did not seem to be affected by rest, and, as a doubtful sign of infection, was disregarded. Pyrexia of more than 99.6° was an indication for rest in bed for several weeks or months, so long as it continued, and was usually accompanied by pallor, loss of weight, tachycardia, and in some cases rheumatic nodules. Nodules might occur without any rise of temperature, and were an indication for complete rest until they had disappeared. A small percentage of patients were kept in bed on account of a tachycardia with a resting pulse rate of 100 or more, as an isolated sign of infection. A rapid heart rate present during the waking hours but absent with the child asleep, without a rise of temperature or loss of weight, was considered a doubtful sign of infection and not an indication for complete rest. Pallor, when conspicuous, was usually associated with some other sign of infection. Arthritis, joint pains, and other articular signs in a large number of cases played a minor part in the diagnosis of a recurring rheumatic infection.

Treatment

If there were no signs of active infection, and no complaint of breathlessness, undue exhaustion, or fatigue at rest, or after running about the house or grounds, such games as football and cricket were allowed, or less strenuous games if the exercise tolerance was poor. The matron's report on the boys' reaction to exercise helped in deciding what games should be played. The games, study hours, and resting periods were regulated by the presence or absence of signs of infection; symptoms of fatigue and exhaustion, and response to effort, rather than by any variation in the heart signs. A striking feature in the examination of the heart was the constancy of the physical signs. It was found that frequent examinations of the heart were unnecessary in recognizing changes in the condition of the patient.

Salicylates were given a good trial, and were not found helpful in controlling the pulse rate or the pyrexial curve, except in those with a high temperature in the course of an acute rheumatic infection. Digitalis, when given in moderately large doses, did not slow the pulse rate in those with a persistent tachycardia. General tonics were sometimes prescribed. Good healthy food, with plenty of butter and milk, was found to be more important than drugs in the treatment of this disease. It has been our practice to enucleate the tonsils, if they were septic, at the local hospital during the course of treatment.

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*Results obtained from Investigation of
After-Histories*

In all but 6 of the 100 cases a diagnosis was made of mitral disease or mitral stenosis. In 57, the larger group, mitral disease with a mitral systolic murmur was diagnosed. As shown in the table, 17, or 29 per cent.,

	Total	Dead	Living	Duration	Untraced	Remarks
Mitral disease, mitral systolic murmur	57	17 (29%)	35 (61%)	7 yrs.	3	2 living after 6 years
Mitral stenosis	23	15 (65%)	6 (26%)	8 yrs.		1 living after 7 years 1 living after 4 years
Aortic regurgitation and mitral stenosis	14	6 (43%)	6 (43%)	8 yrs.	2	
Aortic regurgitation, no valve disease, congenital	6					
	130	38	47		5	

were dead, and 35, or 61 per cent., were alive at the end of seven years, 2 were alive after six years, and 3 could not be traced. In a smaller group of 23 there were definite signs of mitral stenosis; 15 of these, or 65 per cent., were dead, and 6, or 26 per cent., were living after eight years, 1 was alive at the end of seven years, and another after four years. In the smallest group there were 14 with mitral stenosis and aortic regurgitation; 6 of these were dead and 6 living, or 43 per cent., after eight years; 2 could not be traced. No after-histories were obtained in the remaining 6 cases.

Mortality from Mitral Disease and Mitral Stenosis

The mortality rate, as one would expect it to be, is considerably higher in the mitral stenosis group, with 65 per cent. in one, and 43 per cent. in the other, or 57 per cent. if the two groups are combined, than in the mitral disease group with a mitral systolic murmur, and a death rate of 29 per cent. It is well known that a mitral systolic murmur is an unreliable sign of mitral disease. It is a more certain sign in children who have had rheumatism, as was the case in these patients. In this mitral systolic group the murmur may have been functional in some; the mitral valve may not have been damaged, and the heart not affected by the rheumatic infection. In a few, because of the loudness of the murmur, the short diastolic murmur of early mitral stenosis may have been missed. I do not think these problematic diagnostic errors materially alter the significance of these figures in this group of 57 cases.

There were undoubted signs of mitral stenosis in the remaining 37 cases. There is the possibility of an error in the diagnosis of aortic regurgitation in patients with mitral stenosis. In the 14 cases diagnosed aortic regurgitation and mitral stenosis, the death rate was lower than in the group of 23 with mitral stenosis alone. We might have expected a larger number of deaths in these cases, but the total is too small to stress this point.

Conclusions

In comparing the figures of the two main groups—57 with a mitral systolic murmur, and 37 with mitral stenosis—it has to be noted that the after-histories are for seven years in one and eight years in the other. It is probable that the death rate would have been higher than 29 per cent. at the end of eight years in the mitral systolic group, and lower than 65 per cent. at the end of seven years in the mitral stenosis group. Nevertheless, these

figures have an absolute and relative value that the variable factors which have been considered cannot alter. They allow the statement to be made that the prognosis in children with mitral stenosis over a period of eight years who have had treatment in a special convalescent home is a grave one. They raise the question of the value of this form of treatment in mitral stenosis, and whether it is worth while treating such cases in a special convalescent home.

The figures in the mitral systolic group confirm what is well known, that the prognosis is much more favourable in mitral disease in children before the signs of mitral stenosis have developed. They suggest that in early cases treatment in a special convalescent home may play a not unimportant part in controlling the course of the disease.

It has to be admitted that the treatment of a chronic disease like rheumatism, with the cause unknown, is unsatisfactory. This is particularly true in the treatment of children who belong to the poorer classes. On leaving the convalescent home, where they have been more or less protected against reinfection, they return to unhealthy homes, and are again exposed to rheumatic and other infections which cause more damage to the heart muscle and valves. The children of well-to-do parents are better protected against the ravages of rheumatism, for they have home surroundings in which they can live, grow up, and be educated under conditions which are comparable with those which exist in a special convalescent home. The prognosis is more favourable in these children, because the disease is likely to be recognized in its early stages and suitable treatment given at a time when it is possible to prevent the development of progressive changes leading to a serious cardiac disability.

The mortality rate in mitral disease occurring in children from the elementary schools, I am convinced, can be lowered if they are given treatment in a special convalescent home before signs of mitral stenosis have developed. This treatment should be continued over a longer period than has been possible hitherto from lack of bed accommodation. If treatment were limited to those patients with early signs of disease, more beds would be available and courses could be prolonged.

THE PROSTATE IN GENERAL PRACTICE*

BY

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The prostate is an organ which is of far greater importance to the clinician than to the anatomist or the physiologist. To the anatomist it is merely a glandular structure, fitting round the neck of the bladder, and no bigger than a chestnut; to the physiologist it is an accessory sex gland, whose function is so unimportant and so obscure that it has not yet been discovered. To the clinician, however, the prostate is particularly liable to disease, which may occasion disturbances of general health utterly out of proportion to the part the organ plays in the economy of the body. This difference between the roles of the prostate in disease and in health is entirely due to its position at the "cross-roads" of the urinary and genital systems, which are almost bound to suffer when the gland is diseased. For this reason it may be of interest to survey, from the standpoint of the general practitioner, some of the disturbances in general health that may result from a lesion of the prostate.

* Based on a paper read before the St. Pancras Division of the British Medical Association.