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With the Compliments of the Author.

THE TREATMENT

OF

ENDOCARDIAL COMPLICATIONS

IN THE

DISEASES OF CHILDREN.

BY

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THE intimate association of rheumatic arthritis, chorea and endocarditis, together with the well-established fact that endocarditis is not a primary or idiopathic condition, if we omit direct injury as a cause, gives to the subject of the preventive and remedial treatment of endocardial complications a far-reaching importance. In considering the diseases with which an acute cardiac inflammation is apt to be associated, rheumatism naturally stands out in bold relief. So well is this relationship understood in pronounced cases, that the attendant is at once on his guard for the cardiac attack. The important point, however, is the recognition of the danger of the heart in cases in which the symptoms are not well defined or are altogether wanting. The successful handling of endocarditis depends on its early discovery and treatment; it is, therefore, essential always to be on the alert for the possible complication. For example, children suffering from slight attacks of fever, with obscure pains, should suggest to our minds two good points of routine practice; first, to make frequent examinations of the heart with the stethoscope, and secondly, to search carefully for joint tenderness, remembering that in chubby children redness and swelling of the limbs are usually absent. Again, in children of rheumatic parentage, we are not to lose sight of the possible rheumatic origin of the attacks of pains in the legs, with or without pyrexia, which are so frequent in childhood, and also in such diseases as tonsillitis, pleurisy and pneumonia, even if

the leg pains are absent. If such cases are dependent on latent rheumatism the condition of the heart is in grave peril. It is in just such a state of affairs that we are to look for an explanation of the cause for the frequent existence of mitral stenosis in young women, and we can easily convince ourselves that the condition is the result of an undiscovered rheumatic endocarditis in early youth. This association of chorea, rheumatism and endocarditis has of late been greatly dwelt upon. Statistics show that the cases of chorea with endocarditis as a complication are usually those coupled with rheumatism, the natural inference being that the endocarditis of chorea is of a rheumatic origin. But it is an admitted fact that there are cases of chorea with acute cardiac inflammation as a complication, where a rheumatic history cannot be traced. Consequently we are to watch the heart of every case of chorea with the greatest care. Heart inflammation is liable to occur in scarlet fever, diphtheria, measles, tonsillitis, septicæmia and purpura rheumatica. In all of these diseases, especially in children, the endocardial inflammation creeps on insidiously, and is likely to be sub-acute. If there be no secondary pericarditis or myocarditis it may run its course without attracting attention, there being no præcordial pain, palpitation, dyspnœa or distress of any kind, and, on auscultation, it may be impossible to demonstrate the presence of a bruit, and yet the subsequent history of such children will show the development of a serious valve lesion that can be accounted for only on the ground of an unrecognized endocarditis. The knowledge of such cases must make us suspicious of cardiac danger in all cases of rheumatism, no matter how trivial the symptoms. I coincide with the opinion that, in the majority of cases, chorea is simply an expression of a rheumatic diathesis. A careful examination of the hearts of children complaining of slight rheumatism, scarlatina, chorea, erythema, tonsillitis, nephritis, pyæmia, etc., where the fever and other symptoms are possibly only slight may reveal an unexpected valvular murmur, the early recognition of which, leading to proper treatment, will save the little sufferer from a wrecked and stranded existence. In other words, we are not to wait for patients to complain of heart symptoms. Expectancy and constant watchfulness will enable inspection alone to warn us of the earliest cardiac involvement. The expression of the face, the increased difficulty in breathing, no matter how slight, the working of the alæ nasi, the posture in bed, the restlessness, etc., all indicate the oncome of the endocardial complication. In taking up for consideration the treatment of rheumatic endocarditis, the chief clinical fea-

ture brought to our attention is its tendency to repeatedly relapse and recur. Under careful treatment the temperature may fall to normal, the restlessness disappear and all the symptoms abate, the child, seemingly, convalescing splendidly. Suddenly, without cause, or from causes apparently in themselves trifling, the inflammation revives with all its old vigor and danger. Thus the condition may run a most persistent and protracted course. This striking feature in the clinical history of endocarditis shows the remarkable obstinacy of the rheumatic poison, and leads us to the first great essential point in our treatment; that is, the necessity of persistent effort—the patient must be kept under medical inspection for a long time. Any half-hearted management will lead to disastrous results. The peculiar susceptibility of children to impressions is very apt to be overlooked. All of us can probably recall cases of endocardial complication apparently on the high road to recovery under careful treatment, all routed and upset, the patient worse than in the beginning, the cause being a simple change in the diet, an error in the temperature of the room, the visit of a playfellow, the parting of a nurse, an exciting story, a sudden fright and similar circumstances. In a recent case I found a rise of temperature of four degrees, a return of rheumatoid pains, oppression in breathing, etc., in less than four hours, all of which was attributed to a sleeping convalescent being awakened in terror, in the dead of night, by the rumbling and clattering of racing fire-engines. Any of these causes may, in susceptible childhood, be the means of bringing our best effort to nought and our patient a serious relapse, besides straining the relationship between the physician and family. The latter, not being able to appreciate the reason of such repeated relapses, it becomes the duty of the physician, both to himself and the family, to explain in the very beginning of the case this disposition to recurrence, and to insist upon the most scrupulous care and persistent effort in behalf of the little patient long after all apparent signs of the trouble have disappeared.

Our first care will be the prevention of the cardiac complication, and the greatest prophylactic at our command is *heart rest*. In those cases where we suspect this liability we are to use every endeavor to cut short the underlying diseased condition. If it be of rheumatic origin the endocarditis is likely to appear during the first week. If the patient can be piloted, by persistent and careful effort, through the violence of the first week of the rheumatic storm, the complication will probably be avoided. The means to accomplish this end are, first, the remedy best suited to the individual case, assisted by a

competent and vigilant nurse, the avoidance of chill, which is especially apt to occur, and, secondly, a rigidly fluid diet, richly nutritious, but non-stimulating.

When the complication—endocardial inflammation—really exists, we are still to insist on rest—absolute rest—bodily and mental, kept up long after all signs of endocarditis have disappeared. Exertion of all kind increases the action and force of the heart and favors the development of inflammation; while mental excitement will surely give rise to increased cardiac action. The necessity of rest cannot be too much emphasized. Rest in bed means the restriction of muscular effort in every possible way. The patient is not to use his hands where it can be avoided; the holding of a picture-book is especially objectionable. The nurse should anticipate all demands and supply all requirements. The feeding is to be accomplished with the aid of the invalid's cup, or the bent tubes; the bowels, which must be kept regular, and the bladder are to be evacuated with the use of the bed-pan and urinal; the personal comfort of the patient is to be most zealously attended to; this will tax the best judgment and ingenuity of the physician, nurse and parents. The diverting the mind of a pampered child from an ever-returning craving for some simple but harmful article of solid diet, which must be resisted, no matter how trying to the parents, and must be done in a way that will calm and not excite the patient, will oftentimes require of the attendants the attributes of an angel. A meal of solid food will excite the circulation, quicken the cardiac action and act banefully on the inflamed lining membrane of the heart. Stimulants are only to be used where they are demanded by cardiac failure, and then with the greatest caution. A characteristic feature of the indefinite relapsing form of endocardial complication, which drags along week after week, month after month, is a progressive anæmia, sometimes associated with wasting. This tendency will be difficult to overcome. The internal treatment will naturally be the remedy that covers the totality of the symptoms of the individual patient.

In rheumatic conditions aconite has served me well, in the beginning, in the state of hyperæmia preceding the valve changes, the pulse being small, hard and quick, with pains of a sharp, pricking character in the præcordium, associated with faintness, oppression, together with tumultuous action of the heart, causing anxiety and fear of death. If aconite does not speedily relieve, spigelia has been almost a specific in endocarditis. It corresponds to the disease; the

pains are severe, shooting or stabbing in character, with a distressing oppression in the chest, the least motion producing exhaustion and suffocation. The palpitation at times is very violent, the movement of the chest-wall being quite perceptible. The patient cannot lie down. If the palpitation persists after the use of spigelia, spongia has proved to be a valuable remedy; it also follows aconite well, it comes in after the exudation of fibrine and tends to limit the deposit. Veratrum vir. is useful in cases with violent congestion, pain and intense force of circulation. Headache of an acute throbbing nature, without delirium. With rest, an absolute liquid diet, and these four remedies I have usually been able to abate the inflammatory action and shorten the duration of an attack. Kali hydriodicum is a useful remedy in the relapsing endocarditis of rheumatic origin, where there has been an eruption of subcutaneous fibrous nodules. Bryonia will be the remedy for the complication when it is secondary to pleurisy or pneumonia. Arsenicum is indicated during or after the suppression of measles or scarlatina, where we have the characteristic restlessness and agony of the drug, with tingling in the fingers, especially of the left hand, together with dyspnœa. Phosphorus is a neglected remedy in endocarditis; it is of particular value where the endocardial complication arises during the course of an acute rheumatism, in rapidly-growing children who are excessively susceptible to every impression, be it pleasant or otherwise. When associated with chorea I rely on arsenicum, cimicifuga, mygale, phosphorus and verat. vir. If the complication is recognized early I depend upon aconite, ferrum phos., spongia, spigelia, bryonia or phosphorus, whereas, if the disease is advanced, then dependence is placed on such remedies as lachesis, hydrocyanic acid or arsenicum.

When the primary disease, such as rheumatism, chorea, scarlatina, etc., has subsided and the restoration of the various functions indicate that convalescence is well established, I feel that I am entering upon the most difficult stage of the treatment. It is so hard to bolster up the moral courage of a fond mother to the point of resistance of the oft-repeated pleadings of a loved little one "to get up," "hold me in your lap just a little while," and the thousand and one other things that suggest themselves to the active brain of our frail physique city children, with the highly developed and over-wrought nervous systems. We are never to lose sight of the recently inflamed endocardium, and that in all probability it is still in a condition of great physical weakness and the seat of new cell growth.

If we turn a dull ear to the mutterings of attendants and persist in our demands, we will, in the majority of cases, be able to impress on our families the necessity, if not the reason, of a most jealous avoidance of actual exertion for weeks, and the need of a most careful and gradual return to exercise. If we succeed we will save our patients from results that would otherwise be disastrous, and while we may feel that our best efforts have not been appreciated, we can console ourselves with the conscious rectitude of our purpose.