TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice

CHRONIC VALVULAR DISEASE OF THE HEART

BY

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Chronic valvular disease—the commonest form of chronic heart disease—does not entail such a gloomy outlook as was once thought. Intelligent medical supervision of the patient will undoubtedly increase the expectation of useful and comfortable life in many cases, and perhaps postpone the onset of the complications—especially congestive heart failure—to which most sufferers in the end succumb. Before discussing the management of these cases, we will inquire for a moment into the diagnosis of the condition, its significance, and prognosis.

General Considerations

The diagnosis of chronic valvular disease of the heart is arrived at by the discovery of certain murmurs accompanying or replacing the normal heart sounds. It is well known, however, that murmurs vary in their significance, and for practical purposes it can be said that, with few exceptions, murmurs appearing during cardiac systole have little significance as compared with those falling in diastole. The diagnosis of mitral regurgitation following the discovery of a systolic apical murmur is still, unfortunately, far too frequent. As an organic affection of the mitral valve mitral regurgitation is exceedingly rare unless it is associated with the more easily diagnosed and more important mitral stenosis; while as a temporary or functional condition it is overshadowed in importance by the underlying myocardial affection which led to dilatation of the mitral ring. The diagnosis of acquired chronic valvular disease of the heart should not be made from the presence of a systolic murmur alone.

For our present purpose, then, chronic valvular disease comprises mitral stenosis, aortic regurgitation, a combination of these, and the less frequent aortic stenosis. Mitral stenosis is due, with rare exceptions, to a previous rheumatic endocarditis, although a history of rheumatic infection in its various forms is frequently lacking. Disease of the aortic valve leading to regurgitation may similarly be due to a previous rheumatic endocarditis or to a syphilitic aortitis spreading downwards to the valve cusps; or, again, it may result in later life from atheromatous changes in the valve, often associated with the deposition of lime salts. The less frequent aortic stenosis occurs in rheumatic and arteriosclerotic cases, but is rare in syphilis, in which the lesion is essentially destructive.

We can to some extent gauge the degree of a valve lesion. If the presystolic or diastolic murmur of mitral stenosis is heard only at times, or has to be forced out by exercise and by raising the heart rate, then the stenosis is early; if the murmur is constant and tends to fill the whole of diastole, the stenosis is developed. If in aortic regurgitation there is no alteration in the character of the pulse, the regurgitation is slight; if the water-hammer pulse is present the regurgitation is free. Aortic stenosis should not be diagnosed in the absence of a slow rising pulse.

Factors in Prognosis

Although the presence of developed mitral stenosis or free aortic regurgitation must impose an extra burden on the heart, it has long been known that the healthy cardiac muscle possesses an enormous reserve power. The clinical significance of valvular disease lies much more in the fact that when the valve becomes diseased the myocardium frequently suffers material damage at the same time and from the same cause, be it rheumatic, syphilitic, or degenerative. The chief clinical sign of this damage is enlargement of the heart, which was long thought to be a response to increased work and of beneficent design. It is a remarkable fact that, although valvular disease of the heart has been recognized as a serious condition for over a hundred years, we are still lamentably ignorant concerning the natural history of the disease.

Recently, however, Grant has laid a solid foundation for more accurate prognosis in his paper on the after-histories for ten years of a thousand men suffering from heart disease. He shows that the best guides we possess for prognosis in chronic valvular disease are not the characters of the murmurs or the type of valvular defect, but the degree of cardiac enlargement and the grade of heart failure as estimated by the patient's response to effort and by the presence of venous congestion. Prognosis is good, he finds, in cases with little or no enlargement, and when the exercise tolerance is good or fair. Only about 20 per cent. of such patients will die during ten years. Almost half of them survive that period uneventfully and with physical signs unchanged. The prognosis is poor in patients with moderate enlargement and poor exercise tolerance, for 50 per cent. die within ten years. The prognosis is bad in patients with great enlargement or evidence of congestion. Few of these will survive ten years, and the average duration of life in the presence of venous congestion is only two and a half years.

Prognosis is modified by (a) the development of sub-acute bacterial endocarditis—the average duration of life in its presence is six months, and it appears most commonly in cases of non-syphilitic aortic regurgitation—and (b) the onset of auricular fibrillation, which influences unfavourably the general prognosis. The latter occurs more frequently in developed mitral stenosis than in early stenosis. Prognosis is less favourable in aortic stenosis and in syphilitic aortic regurgitation. With these exceptions, the type of valve defect does not appreciably affect the outlook, for there is no material difference in the death rates in mitral stenosis, in non-syphilitic aortic regurgitation, or with these lesions combined. One of Grant's most important conclusions is that "the general outlook for cases of valve defect is not so bad as is generally thought, even for syphilitic regurgitation. The average life in cases with aneurysm is over five years, and in its absence only 58 per cent. of those with syphilitic aortic disease die within ten years." Another striking fact which emerges is the large proportion of cases of chronic valvular disease of the heart which are summarized as "uneventful and unchanged." Even in the majority of those patients who die there is no steady progression downwards; the original condition of valve lesion, heart size, and exercise tolerance remains unchanged until death supervenes suddenly or within a year or two of the onset of congestive heart failure.

The following table gives at a glance some of the chief figures from Grant's paper.

	Mitral Stenosis (Rheumatic)	Non-syphilitic Aortic Regur- gitation (Rheumatic and Indefinite)	Syphilitic Aortic Regurgita- tion
1. Number of uncomplicated cases	197	129	136
2. Live ten years with no altera- tion in signs	35%	34	18
3. Develop auricular fibrillation	20%	2	4
4. Develop subacute bacterial endocarditis	3%	10	4
5. Develop congestive heart failure	25%	10	22
6. Died	36%	42	60
7. Chief causes of death:			
(a) Sudden death	Very rare	14%	33%
(b) Congestive heart failure	52%	19%	36%
(c) Subacute bacterial endo- carditis	3%	38%	0%
(d) Pulmonary affections ...	10%	—	6%

The medical man should therefore take a long view when confronted with a case of chronic valvular disease of the heart. He should gauge the severity of the case by assessing the degree of valve defect, the amount of cardiac enlargement, and the degree of encroachment on the heart's reserves by the amount of exercise tolerance and the presence of venous congestion. In this manner he will obtain some idea as to the outlook and the extent to which it will be necessary to interfere with the patient's mode of life.

Therapeutic Principles

Treatment consists not in the use of drugs—for the days when the discovery of a murmur led to the automatic prescription of digitalis are long past—but in the institution of a suitable mode of life, one calculated to ward off for as long as possible the dangers which beset the patient. This simple and obvious conception is, however, often difficult of accomplishment. The patient's mind and spirit have to be considered as well as his body, and, while suitably protecting the patient, the practitioner must avoid over-fussiness and the danger of bringing about a state of chronic invalidism. Common sense is of more value than a knowledge of drugs. We cannot repair an already damaged myocardium; our efforts should be directed towards preventing further damage. For, as we have seen, it is not the valve lesion which is responsible for the final breakdown, but weakening of the heart muscle. Unfortunately we are ignorant to a large extent of the factors which produce the state of the myocardium which leads to congestive heart failure and to auricular fibrillation, though there is evidence that infection often plays an important part in the former.

With regard to the management of cases of chronic valvular disease we can use the three prognostic groups already given, and say that (a) in cases with no cardiac enlargement and a good exercise tolerance it will only be necessary to forbid the more strenuous forms of work and exercise; (b) with moderate enlargement and fair to poor exercise tolerance varying degrees of restriction will be necessary; and (c) with great enlargement and signs of venous congestion the patient will require treatment as for congestive failure.

In every case careful and detailed inquiry should be made into the routine of the patient's life, and instruction should be given on the following points.

1. *Exercise*.—Some form of outdoor exercise is of great benefit for all patients with chronic valvular disease who are fit to walk about. The form and amount of exertion permissible is determined on the principle, which should

be clearly explained to the patient, that it should not induce symptoms, such as dyspnoea, during the exercise, or undue fatigue afterwards; in other words, the patient should keep well within his capacity for effort. Even when there is some quickening in the breathing, exercise is allowable so long as actual distress is avoided and the dyspnoea quickly disappears on resting. Most patients quickly learn their limits and get used to a suitable routine life.

2. *Occupation*.—Suitability of work is decided upon the same principle, but the patient should not be advised to leave or change his occupation unless there are clear reasons for doing so, for unemployment will add many fresh anxieties. Heavy manual work is rarely possible, but lighter occupations can often be carried out without harm, though a large proportion of the patients will be forced to take only sedentary occupations. Children should be kept at school wherever possible, though under strict supervision with regard to games.

3. *Sudden Strains*.—In every case the patient should be warned against sudden strain of all forms, such as running to catch a bus or train, or lifting heavy weights.

4. *Diet*.—Moderation in eating should be enjoined. There is no need for special dieting in the slight cases. When the patient is confined to bed from any cause small dry meals, with a relatively low carbohydrate content to avoid flatulence, are indicated. Meals should be taken at regular intervals, should consist solely of easily digested food, and only in such quantities as are required to maintain a correct weight. Obesity adds its burden to the heart, and its removal (by a gradual reduction in the carbohydrate and fat content of the dietary) forms an important indication for treatment.

5. *Infections*.—Avoidance of respiratory and other infections by taking such obvious precautions as shunning crowded rooms or meetings, especially at times when infection is likely (in the winter months and at times of epidemics); by avoiding fatigue, hunger, and unnecessary exposure to cold and damp; by careful attention to cleanliness of the skin and mouth. In some patients prophylactic inoculations with stock anti-catarrh vaccine seem to protect against upper respiratory tract infections.

6. *Tonsillectomy*.—This is advisable in young subjects with rheumatic heart disease if there is any suspicion that the tonsils are infected, for there is evidence that complete tonsillectomy affords some degree of protection against a recurrence of the rheumatic infection. Adenoid vegetations should be cleared away at the same time.

7. *Tobacco*.—There is no evidence that tobacco smoking in moderation is injurious to cardiac patients. Some, however, are unduly sensitive to tobacco smoke, with resulting chronic cough and increased susceptibility to upper respiratory tract infections, and in these abstinence is advisable.

8. *Alcohol*.—A glass of wine or a small whisky-and-soda with meals should not be forbidden. Strong tea or coffee should be avoided.

9. *Medical Supervision*.—All cases of chronic valvular disease should be under medical supervision. In slight cases with few or no symptoms an examination every six months or so should suffice. In severer cases the supervision should be close, for the detection of heart failure in its early stages, as shown by decreasing exercise tolerance or an increase in venous pressure, and prompt confinement to bed may save many months of tedious or grave illness.

10. *Drug Treatment*.—Tonics, sedatives, and expectorants have their occasional uses. But it is only when serious complications such as angina pectoris, auricular fibrillation, or congestive failure appear that drug treatment becomes important, and these conditions have been dealt with in other articles in this series.