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.

CARDIO-AORTIC SYPHILIS

BY

D. EVAN BEDFORD, M.D., F.R.C.P.

The clinical manifestations of cardio-aortic syphilis usually appear between fifteen and thirty years after the primary infection. In its early stages aortitis is a silent lesion, and by the time it declares itself permanent damage to the heart has generally occurred. To appreciate the possibilities of antisyphilitic treatment in aortitis it is necessary to understand correctly the pathology of syphilitic heart disease.

Syphilis invades the aorta from without, permeating the media and weakening the aortic wall. This commonly results in general dilatation of the aortic lumen, sometimes complicated by saccular aneurysm. The syphilitic process is concentrated in the proximal aorta, where it is prone to involve the aortic cusps and the coronary openings. Two serious complications result: aortic incompetence and stenosis of the coronary ostia. The syphilitic process is confined to the aorta and its valves; syphilitic inflammation of the heart muscle or of the coronary arteries beyond the aorta is scarcely ever observed at necropsy. The changes found in the heart itself consist of hypertrophy and dilatation and often ischaemic fibrosis, and are accounted for by aortic regurgitation and coronary stenosis. Thus heart failure and severe angina pectoris in syphilitic heart disease must be attributed, not to inflammation of the heart itself, but to the late mechanical results of aortitis, which increase the work of the heart and at the same time diminish its blood supply.

Antisyphilitic treatment is without effect on these mechanical end-results of aortitis once they have appeared, though it may check their further progress and cause resolution of syphilitic inflammation in the aortic wall. The benefit to be derived from antisyphilitic remedies will depend, therefore, on how far the function of the myocardium is already impaired by aortic incompetence or coronary stenosis at the time treatment is started.

General Treatment

Rest is the most essential measure in treatment. Its purpose is, first, to minimize the work of the heart, and, secondly, to prevent further dilatation of the aorta by keeping the blood pressure as low as possible. Rest is especially important at the beginning of treatment, when the syphilitic inflammation is reacting to trypanocidal drugs. A minimum period of six weeks should be spent in bed while treatment is first instituted, and this rest must be extended if symptoms persist or if the heart is badly damaged.

Manual work and acts involving physical strain should be forbidden in any form of syphilitic heart disease. Patients with aneurysm, severe angina pectoris, or congestive heart failure will require long periods of rest, and physical exertion should be permanently restricted to walking slowly on the level. Moderation in food, tobacco, and alcohol is also important.

Antisyphilitic Treatment Dangers

If arsenic is given to an untreated case of syphilitic heart disease it is occasionally followed by a sudden aggravation of the symptoms, attributed to a focal reaction in the aorta (Herxheimer reaction). In the same circumstances, a temporary general improvement may be followed by aggravation of the heart condition or by heart failure ("therapeutic paradox"). This is attributed to the weakening effect of rapid resolution of syphilitic inflammation in the aorta and valves.

These dangers can best be avoided by always preceding arsenic with a preliminary course of mercury. It is well to bear in mind that arteriosclerosis, hypertension, and renal disease are not infrequently associated with syphilitic lesions in elderly subjects, and the general condition of the patient should be investigated. Severe reactions are undesirable in patients with heart disease, and any symptoms of intolerance to arsenic should contraindicate its further use.

Principles of Treatment

The benefit derived from antisyphilitic drugs will depend on the stage of the disease when treatment is started. Where the myocardium is still intact, a vigorous attack on the spirochaetes may preserve its integrity, and the most potent remedies we possess are justifiable. But where the heart muscle is already crippled by permanent mechanical faults, curing the syphilis can help it little, and milder remedies are indicated.

As a general rule, a rest in bed for at least six weeks should be ordered at the start of treatment, and this should be prolonged if the symptoms persist. A rigid routine method is less applicable to cardiovascular than to other forms of syphilis, and the reaction to treatment should be carefully watched in every case. The following plan is intended as a guide, and will often require modification.

AORTITIS WITHOUT INCOMPETENCE OR CARDIAC ENLARGEMENT

Mercury and iodide are given for two months. They may be taken by mouth as follows:

R _x	Liq. hydrarg. perchlor.	...	...	...	5 j
	Pot. iod.	...	...	...	gr. x
	Spt. chlorof.	...	...	...	℥ v
	Infus. gent. co.	...	...	...	ad 3 ss

The dose is prescribed twice daily at the beginning and increased to thrice daily if well tolerated. It is often more convenient to give mercury in pill form as follows:

R _x	Hydrarg. cum cret.	{	āā	...	...	...	gr. j
	Pulv. ipecac. co.						

The pill is given twice daily. Some consider mercurial injections more efficacious, and 1 grain of metallic mercury in the form of grey oil or mercurial cream may be injected intramuscularly into the buttocks once weekly for twelve weeks. During this treatment attention should be paid to the teeth and gums. If the patient is free from symptoms a course of arsenic should follow, and is best prescribed in the form of intravenous injections of neoarsphenamine (N.A.B.). The initial dose should be 0.2 gram, and this is increased up to but not exceeding

0.6 gram; ten weekly injections constitute a course. The usual preparation is required before an injection. No food should be taken for six hours beforehand, unless 1/2 oz. of glucose be given; alcohol is forbidden. The patient is best kept in bed for the first doses of arsenic, and should in any case be instructed to rest for several hours after the injection, which may conveniently be administered in the evening.

Arsenic should be stopped if there are any signs of intolerance or if it appears to react unfavourably on the heart condition. If arsenic is not tolerated, or if it is contraindicated by the general condition, bismuth may be prescribed in its place. Bismuth is administered by intramuscular injection, either of the metal itself in suitable suspension, or of a salt or compound. The dose of metallic bismuth (bismostab, hypoloid bismuth metal) should be 0.2 gram, weekly for ten to twelve weeks. Alternatively, quinine iodo-bismuthate may be used, 3 c.cm. of a 10 per cent. oily suspension being injected weekly for a similar period.

Antisymphilitic treatment should be continued for at least two years, and should not be stopped or modified on account of a negative Wassermann reaction. A course of arsenic or bismuth may be repeated at intervals of six months, and between such courses mercury and iodide is taken. A few weeks' rest from mercury is advisable every two months. Even after the completion of two years' treatment, an occasional course of mercury is a wise precaution.

AORTITIS WITH AORTIC INCOMPETENCE

Here the intensity of treatment should depend on the degree of enlargement of the heart and on the severity of the symptoms. If the heart is little enlarged and the symptoms are slight, treatment should be the same as for simple aortitis, though the preliminary course of iodide and mercury should be prolonged to three months. Considerable cardiac enlargement, or symptoms of moderate severity, should contraindicate arsenic. Bismuth may be given instead, but the results should be watched carefully.

SYPHILITIC CONGESTIVE HEART FAILURE

Rest and treatment of the heart should precede antisymphilitic drugs. Ordinary measures such as restriction of fluids and salt, and digitalis in adequate doses (for example, 2 grains of powdered leaf or 20 minims of tincture, thrice daily), are employed. Where there is much oedema intravenous injections of salyrgan are valuable; an initial dose of 1 c.cm. is followed at intervals of four days by 2 c.cm. Once failure is controlled, mercury and iodide are taken by mouth, starting with half the doses mentioned in the case of simple aortitis. The expectation of life in syphilitic heart failure is not more than a year, and more vigorous antisymphilitic measures are not likely to improve the patient. If unexpected improvement results from treatment, a course of bismuth may be prescribed cautiously, but arsenic is contraindicated.

SYPHILITIC ANGINA PECTORIS

Angina of effort which is relieved by rest in bed may be treated in the same way as cases with aortic incompetence. Arsenic is not absolutely contraindicated where the heart appears but slightly damaged, but it should only be given to those cases that react well to preliminary treatment. Severe anginal attacks which continue when the patient is confined to bed point to coronary stenosis. In such the prognosis is extremely bad, and antisymphilitic treatment should be confined to mercury and iodide. Prolonged rest in bed and measures to relieve the pain are indicated. Trinitrin tablets, 1/10 grain, may be taken freely, but opium is often required, and may be ordered in the form of nepenthe or tincture of opium in doses of

20 minims. An injection of morphine should never be withheld when the pain does not rapidly subside. Surgical treatment, such as cervical sympathectomy or total thyroidectomy, advocated for intractable cases of angina, can scarcely be justified in syphilitic coronary stenosis.

SACCULAR ANEURYSM

Aneurysm has no direct effect on the heart unless it involves the aortic orifice and causes incompetence of the valves. Apart from pressure symptoms, a small aneurysm need not modify the ordinary antisymphilitic measures, which should be adapted to the condition of the heart, as already indicated. Aneurysm is an additional reason for a rigid restriction of physical exertion. Serious pressure symptoms or haemoptysis are indications for rest in bed and sedatives, and antisymphilitic measures should be limited to mercury and iodide by mouth. When a bronchus is compressed, iodide is not always well tolerated.

Results of Treatment

The best results are obtained when treatment is started before the occurrence of aortic incompetence, while the heart is still unaffected. Relief of symptoms is the rule and life is prolonged. It is only in this type of case that anything approaching a clinical cure can be expected. Even continuous treatment cannot, however, always prevent aortic incompetence developing once the aortic wall is damaged. When aortic incompetence is already present the results of treatment are far less satisfactory and are more difficult to assess. In some cases there is obvious clinical improvement; in others little change is observed; but evidence is accumulating that life is often prolonged by treatment.

Rest undoubtedly influences the course of the heart disease favourably, and much will depend on how far the patient is able and willing to submit to the necessary restriction of his activities. In a small proportion of cases antisymphilitic treatment appears to do harm, but this often implies the use of too vigorous methods. Once the coronary orifices are seriously stenosed, so that the blood supply to the heart is permanently reduced, all that can be hoped for is to diminish the severity of the symptoms by prolonged rest in bed and sedatives. This applies to most patients with severe anginal attacks at rest, or with cardiac asthma.

According to M. Ghendler (*Thèse de Paris*, 1935, No. 101), before the great war typhus fever was not endemic in Rumania. In the decennium 1905 to 1914 the annual number of cases ranged from 0 in 1908, 1912, and 1914, to 111 in 1911. In spite of the epidemic prevalence of the disease in Serbia and Russia only forty cases occurred in Rumania during the first three months of 1915, but after the entrance of Rumania into the war in August, 1916, the crowding, promiscuity, and lack of hygiene prepared the ground for the virus, which was introduced by the Russian troops. In January, 1917, a great epidemic broke out, first among the soldiers and then in the civil population. There were about 100,000 deaths, including 350 out of 1,500 doctors mobilized. The campaign against the disease was rendered difficult by lack of hospital accommodation and the coexistence of relapsing fever. As the result, however, of extensive disinfection the epidemic was almost stamped out by January, 1918, but the return of prisoners and the reflux of refugees from the Ukraine, where typhus was prevalent, caused a fresh outbreak, though on a smaller scale, and since then the disease has been in endemics in Rumania. The fatality rate, however, has fallen from an average of 20 per cent. during epidemic times to 10 per cent. Most of the cases at the present time occur in Bessarabia, then in that part of Moldavia bordering on Bukovina, and lastly in Bukovina itself. Ghendler attributes the persistence of typhus in Rumania to the presence of clinically non-apparent forms.