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

THE TREATMENT OF ANGINA PECTORIS

BY

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A patient who genuinely experiences very severe pain in the centre of the chest most probably has some form of angina pectoris. This pain is the expression of myocardial ischaemia, which is the outcome of disease or derangement of the coronary arteries. If the arrest of blood supply is permanent, infarction of the heart muscle takes place and the pain is prolonged for hours or days (coronary thrombosis). During exertion the heart muscle requires extra blood, and if through disease of the coronary arteries this demand cannot be met temporary myocardial ischaemia results and anginal pain is experienced; this pain disappears with the cessation of effort, and is therefore known as angina of effort. Sometimes paroxysmal anginal pain arises independently of effort, but it is then associated with some factor that might be regarded as the equivalent of effort, such as a large meal, or a fit of anger, or a sudden change in the temperature of the environment. Paroxysms of this kind are suitably referred to as spasmodic angina, or as angina decubitus if the attacks take place at night. A consideration of the syndrome of coronary thrombosis is beyond our present purpose. Of the other forms of angina, effort angina is by far the commonest; it will therefore receive primary consideration here.

Whatever its severity, anginal pain has invariably a continuity that distinguishes it sharply from the stabbing or pricking pains over the left mammary region which have no constant relation to effort and do not represent myocardial ischaemia. Anginal pain has a tendency to radiate into the throat, to the left shoulder and arm, and sometimes to both arms, even reaching the fingers. Unusually, radiation may involve the jaw, epigastrium, or scapula. Any conjunction of events that conduces to relative myocardial ischaemia may play a part in the production of anginal pain. Thus an emotional disturbance or any form of rapid action of the heart may be as potent as physical activity to invoke pain, while anaemia or hypoglycaemia serve as well as coronary sclerosis to starve the heart muscle.

General Regime

The decision that a patient is suffering from angina pectoris commits the physician to a complete review of the patient and his mode of life. This includes work and recreation, hours of rest, diet, habits, and temperament. The scheme of treatment should therefore embrace these factors in a suitable regime. It should also include preventive measures and the means of treating attacks. Finally, it should seek to control associated or contributory disorders.

The treatment of angina pectoris consists in a mode of life rather than a therapeutic system. Every modification in the daily life of the patient has as its object the avoidance of the pain. In milder grades of the malady the patient is allowed to pursue such activities as do not result in pain. It is often found that the amount of exertion necessary to induce an attack is remarkably constant, and the intelligent individual quickly learns to

keep within the limits of pain-production. He should be warned to avoid those activities which might compel unwonted exertion, such as country expeditions and the care of children. All forms of strenuous activity—running, swimming, rowing, lifting, and the like—should be absolutely forbidden. Inquiry should be made into the business and domestic affairs of the patient, and, as far as possible, all sources of worry, anxiety, and fatigue should be removed. Sometimes it is found that the hours of rest are insufficient: ten should be a minimum. The patient should be taught to relax his muscles purposefully when resting, and to divert his mind, if necessary by suitable reading, from the cares and worries that so often aggravate the condition.

Dist.—There is no need to limit the diet in any way that is irksome or obtrusive. Moderation in a general dietary is to be advised. Meals should be small in bulk and taken with a minimum of fluid. In the spare, active type of patient a tablespoonful of medicinal glucose, taken in powder form with the principal meals, serves as extra nutrition for the heart muscle. In general, alcohol is best avoided, but the patient who sets store on a glass of sherry or white wine with a meal, or who finds that a whisky at night promotes mental relaxation and sleep, may derive more harm than good from abstinence. Exercise after a meal is particularly apt to induce anginal pain; sitting for half an hour to an hour after food is a good rule for all anginal subjects, and especially for those in whom the taking of food predisposes to pain. When it is recognized that a change of temperature brings on an attack, the bedroom should be warmed both before retiring and before rising. Cold winds are especially to be avoided by these patients.

Rest.—Confinement to bed for a period of two or three weeks is indicated in the following circumstances: when the attacks are becoming more frequent or more severe; when nocturnal attacks supplement angina of effort; when there is suspicion that the anginal syndrome had a recent origin in coronary thrombosis; when there is evidence of active myocardial disease (for example, frequent premature contractions or various grades of heart-block); when associated diseases such as syphilitic aortitis or an anaemia exist. It is advisable sometimes to send the patient—if his financial status allows it—on a holiday of three to six months in a warm but not hot climate. This is specially advisable if the disease is of recent onset and if it is suspected that the occupation or environment has contributed to the development of the syndrome in a highly strung patient; also if the anginal syndrome dates from an acute coronary occlusion. In the latter event the patient has, in any case, a month or two to spend before he can be allowed to resume even partially the physical and mental stress of his occupation.

Medicinal Treatment

Medicines may be administered as treatment in an attack, as means of preventing attacks, and as remedies for individual symptoms.

IN AN ATTACK

An "attack" often consists merely in the development of a premonitory pain or sense of constriction during exertion. The patient should at once discontinue the effort and, if possible, sit down; he should chew a tablet

of trinitrin 1/100 grain, and allow it to dissolve under the tongue. These measures usually bring relief within a minute or two; if not, another tablet should be taken.

The pain may in severer cases develop more suddenly or become rapidly intense. The same principle of immediate rest applies, but nitrite may be more advantageously inhaled. A capsule of amyl nitrite (5 minims) is crushed and held under the nostrils, while several deep breaths are drawn. The pain should then abate within a few seconds, and at the same time the patient experiences a sensation of heat in the face, throbbing of the head, and sometimes dizziness. Patients should be warned of these collateral effects before being given the first inhalation of amyl nitrite. When no nitrite is available, whisky or brandy may give considerable relief, and they may also be used if the patient shows any degree of collapse or faintness after the attack. If an attack persists for an hour or more in spite of nitrites, coronary thrombosis has probably occurred; the patient should be put to bed and given an injection of morphine 1/4 grain.

TO PREVENT ATTACKS

The success or otherwise of a patient in warding off attacks of effort angina is in direct proportion to his intelligence and care in following the prescribed regime. The pain is so often related to a particular amount of exertion, and even confined to a certain time of day, that a wise patient has a fair prospect of preventing attacks. But whatever forethought or care the patient exercises he is never free from the possibility of spasmodic attacks at any time, and he should therefore always carry one or two capsules of amyl nitrite and some tablets of trinitrin. The latter deteriorate with keeping, and fresh supplies should be obtained every two months. If the patient feels he must undertake some activity that is apt to bring on the pain, he should take one of the trinitrin tablets a quarter of an hour in advance. If the patient is subject to pain at certain times of the day, despite his usual precautions, he should take trinitrin before those times. Such medication may be given from three to a dozen or more times in the day. By this means the patient may be able to follow quiet activities and lead a useful life, whereas otherwise he would remain gravely incapacitated, tied to his house, if not to his room. This therapy may not safely be regarded as a licence for unnecessary activities.

Another drug that is known to produce dilatation of the coronary arteries is theobromine sodium salicylate (diuretin). This may be given as a routine in doses of 10 grains thrice daily; it is perhaps specially indicated when coronary sclerosis is attended by infrequent bouts of anginal pain. When the patient is highly strung, and there is a pronounced neurogenic element in the attacks, the combination of 5 grains of theobromine with half a grain of sodium luminal is often valuable.

FOR OTHER SYMPTOMS

Apart from those medicaments directed to producing coronary dilatation, the patient may need treatment for associated disorders of function. If he is of nervous and excitable temperament a routine sedative such as a draught combining 10 grains of potassium bromide with 1/2 grain of luminal may be given on retiring or twice daily. This will often enable the patient to tolerate the extra hours of rest which have been advocated in the readjustment of his regime. For insomnia this draught may be effective, or, alternatively, 20 grains of potassium bromide with 10 grains of chloral hydrate. Chloral hydrate (20 grains) or syrup of chloral (2 drachms) offers the best prospect of relief from angina decubitus.

Flatulence or gastric distension seems frequently to predispose to attacks of angina pectoris. A pill containing calomel 1/6 grain, menthol 1/4 grain, pulv. zingib. 1/4

grain, and taken thrice daily after meals is then useful. The treatment of constipation is important, since many patients experience attacks through straining at stool. For constipation that is more than occasional it is best to employ a regular lubricant, such as paraffin emulsion half an ounce twice daily, with or without phenolphthalein 1 to 3 grains. Senna tea or cascara evacuant may be given in more obstinate conditions.

DRUGS TO AVOID

Smoking is unwise for those who suffer from angina. In some syndromes it is clear that the use of tobacco increases the frequency and severity of the pain. For these patients, and for those who have chronic cough, smoking should be forbidden. On the other hand, there is less to be said for abstinence in those who have gained no benefit from it during a period of some months.

There are certain drugs that may be dangerous if given to anginal patients. Adrenaline, ephedrine, and thyroid, even in small doses in some subjects, increase the rate and force of the heart-beat. The myocardium will consequently demand increased blood supply, which the coronary arteries may not be able to provide. These drugs are therefore apt to provoke anginal pain.

Treatment of Associated Disorders

Apart from the measures designed to prevent attacks or to alleviate other symptoms, there are frequently associated disorders which urgently need correction. Such collateral conditions may exert a harmful influence in that they throw an additional burden on the heart: to this group belong obesity, with the frequently attendant flat feet; high blood pressure; and thyrotoxicosis. Other associated abnormalities, such as anaemia and hypoglycaemia, render the patient specially liable to attacks by enfeebling the nutritive power of a myocardial blood supply already reduced in volume.

Obesity offers special difficulties of treatment in the subject of angina of effort. Exercise and thyroid medication are alike contraindicated. Dieting alone remains. The patient should be instructed to avoid fried foods, gravies, and sauces; to take no sugar in beverages, no food at tea-time, no bread except at breakfast, and no food between meals. He is advised that lean meat, clear soup, fish, chicken, green vegetables, and fruit are not fattening, and should form the bulk of the diet. Flat-foot and other minor foot troubles that may result from obesity constitute not only a source of peripheral irritation but a definite extra load on the heart. They therefore demand correction. The elimination of septic foci may turn out to be of importance. Sources of gross sepsis, such as dental caries, pyorrhoea, and sinus or tonsillar infection, demand judicious removal at an early opportunity.

High blood pressure commonly exists in those subject to angina. The regime, dietary, and medicaments already mentioned in the treatment of the anginal patient are those which may also help to lower the blood pressure. When the pressure remains persistently at a high level venesection (20 ounces) is indicated, and may be repeated at intervals of three months if it confers benefit. When a patient suffers from angina and thyrotoxicosis, thyroidectomy may be the only means of giving relief and improving the effort tolerance. If this operation is performed the surgeon should aim at complete removal. The resulting myxoedema can subsequently be corrected by suitable thyroid medication. If angina pectoris and diabetes occur in the same patient the coronary syndrome should first receive attention. It is wisest not to interfere too much with the diabetic condition, and the patient is safer passing small amounts of sugar with a mild hyperglycaemia. The attempt to abolish glycosuria and hyperglycaemia by the use of insulin in these patients has

many times brought infarction of the heart or sudden death. The last, but by no means least important, contributory factor is anaemia. The cause (or colour index) of the anaemia is immaterial from the standpoint of anginal pain. For pernicious anaemia the usual liver therapy should be instituted. For the microcytic or nutritional types, pil. ferri 30 grains thrice daily, or iron and ammonium citrate 40 grains thrice daily, will be suitable medication.

Surgical Treatment

From time to time certain surgical procedures have been advocated for the relief of angina pectoris. Paravertebral injections of alcohol are said to yield good results. Cervical or dorsal sympathectomy has also been followed by improvement in some cases. These, and other surgical procedures, are still largely in an experimental stage, and will not be further considered.

WIESBADEN MEDICAL CONGRESS

Three prominent German medical societies, led by the Society for Internal Medicine, held a joint meeting at Wiesbaden from March 24th to 29th, when a number of different subjects came up for discussion.

RESPIRATION AND THE CIRCULATION

The problem of the inter-effects of circulation, and vice versa, was discussed by Hess of Zurich, Wenckebach of Vienna, and Hochrein of Leipzig. The last-named dealt with his own work on the localization of the nervous centre of respiration and circulation in the middle- and sub-calamus. Stimulation of the medial margin of the latter produced a fall in blood pressure, whilst a rise followed stimulation of the rostral part of the posterior sub-calamus. Hess emphasized the importance of a detailed histological examination of this area, the stimulating margin of which was less than one millimetre in extent. Hochrein, discussing the possibility of the lungs acting as a blood reservoir, stated his belief that their blood content was more or less constant, irrespective of whether the organism was resting or not. The resting lung would thus act as a blood reserve in the same way as the spleen. In the subsequent discussion Rein of Göttingen disagreed with this view, and showed curves demonstrating the changes of the carbon dioxide content and oxygen content of the respiratory gases produced by slight exercise. The alteration of the respiratory volume followed so rapidly upon the commencement of exercise that it could not be due to the stimulating effects of products of increased metabolism, but must be the result of a reflex action. Further, there was an instantaneous increase in the venous blood supply to the lung originating from the vena cava, which was responsible for the effect noted by Hochrein—that is, an increased output of arterial blood.

AERONAUTICS: AGRANULOCYTOSIS

The second day of the congress was devoted to a discussion of medico-aeronautical questions, in particular the effects of high altitudes and rapid changes in height on the endurance capabilities of the human organism. During the same day the effect of physical exercises on the heart also came up for discussion.

Acute diseases of the myeloid system were also dealt with, Hellman of Lund discussing the pathological side of the problem, while Werner Schultz of Charlottenburg dealt with the clinical aspect. Naegeli of Zurich, dealing with agranulocytosis, advocated the more frequent use of sternal puncture in order to discover what changes were taking place in the formation of blood cells. Reference was made to the influence of individual drugs on blood composition, and it was stated that in America the prospect of healing advanced cases was considered to be rather small. Schultz regarded liver therapy favourably, but had not seen any success with pentnucleotide or with adrenaline. German workers could only attribute 10 per cent. of their cases of agranulocytosis to the use of drugs,

and at the request of the German Ministry of Health an investigation of the prolonged administration of large doses of amidopyrine showed no agranulocytosis. In some instances more than a kilo of this drug had been taken in the course of time. It was believed that only a small percentage of the population was susceptible to these drugs, and Schittenhelm of Munich emphasized that rare cases should not result in a general repudiation of them. Plum of Copenhagen and Stähelin of Basle showed that an appreciable percentage of cases of agranulocytosis had been traced to the use of amidopyrine, but this was negligible if the total number of people using the drug was taken into consideration.

OTHER SUBJECTS

Pulmonary tuberculosis treated by the thoracocautic method was also discussed. Hein of Tönshede and Maurer of Davos showed x-ray photographs illustrating the results of this electrical burning of adhesions between the lung and the pleura. Sauerbruch of Berlin advocated that the operation should not be applied when the adhesions covered wide areas.

Schulten of Hamburg discussed the importance of specific serological reactions in hospital and general practice, and referred to their value in diagnosis. The Wassermann reaction had been supplemented by a flocculent reaction using specific spirilla extract developed by the speaker in collaboration with Gaethgens of Hamburg. Recognition of typhoid and paratyphoid was aided by an agglutination reaction after Gruber-Widal's method. Serum diagnosis was possible in the following diseases: gonorrhoea, Weil's disease, Bang's disease, whooping-cough, streptococcal infection (endocarditis lenta), and erysipelas.

Some attention was given to gastroscopy as a supplement to the diagnosis of gastric disease. It was mentioned that in place of the old rigid tube a flexible instrument had now been constructed which gave a clear view of the inside of the stomach; the musculature as well as the opening and closing of the pylorus could be observed.

BIOCLIMATOLOGY

Schittenhelm discussed the rhythmic changes of the surroundings (night and day, the seasons, etc.) which had an appreciable effect on the working of the organism. It was well known that there was a noticeable increase in the number of births and deaths in the early hours of the morning. Equally remarkable was the twenty-seven-day rhythm of death, which had been satisfactorily proved by statistics. Even such subtle things as the phosphorus, calcium, and iodine content of the blood were also subject to rhythmic changes. Another point to which Madsen of Copenhagen referred was the change in the power of resistance to various infections with the seasons. Schittenhelm pointed out that the climatic stimulation could considerably modify the organism, because of its adaptability, and thus give rise to racial changes. Examples of the development of local races in botany and zoology were referred to. Linke of Frankfurt, after mentioning the physiological effects of the electrical field round the earth caused by sunspots, stated that the existence of the "magnetic earth radiation" was not proved.

On the last day of the meeting Heubner of Berlin discussed balneological research, and criticized the methods hitherto employed in this field, in that the fundamental results were unreliable and insufficient. Detailed investigation of our knowledge of human metabolism was now called for. Conclusions based on animal experiments should be arrived at with special caution. Rein of Göttingen confined himself to the physical effects produced by heat and electricity, the experimental basis of which had been worked out by the speaker. He mentioned that it was not the elevated temperature, but the temperature gradient that caused the physiological stimulation. The effects of faradic current had been found to depend largely upon the frequency of the current. High frequency caused motor excitement in the sciatic nerve, whereas low frequency stimulated the sensory and vegetative centres. The speaker expressed hope that the speculative theories dominating this field of activity, and mainly due to insufficient training of medical students in physics, would in future disappear.