HEART FAILURE IN THE AGED.

A clinical study.

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The heart failure of old age differs considerably from a similar condition occurring in earlier life. The ætiology, course, prognosis and treatment are all, to some extent, modified by the special circumstances. Even the presenting symptoms are not the same in some cases. In a series of forty-five elderly people, all showing evidence of cardiac failure, these differences were clearly marked.

AETIOLOGY AND PREDISPOSING FACTORS.

The series was composed of thirty-nine Chelsea pensioners and six private patients, of whom two were women. The youngest patient was sixty-two and the oldest a few months over ninety. Only six were under seventy, while fourteen were over eighty and the other twenty-five between seventy and eighty.

Eleven of the cases recorded followed shortly after or formed part of an attack of bronchitis. Each of these patients was accustomed to have some degree of bronchitis each year for some time past.

No cases of rheumatic or congenital heart disease were found. The youngest patient (62) was the only one with syphilitic heart disease, although a positive Wasserman reaction is not very uncommon amongst Chelsea pensioners. Hypertensive heart disease was present in seventeen, whose ages ranged from sixty-five to eighty-five. Coronary artery disease occurred in eleven patients. Heart block of unknown origin accounted for one case, while two died from the complications of an atheromatous aorta. The remaining thirteen were labelled "myocardial degeneration." They consisted of cases of congestive failure without any valvular lesion, whose blood pressure was not raised at any time and whose symptoms were dyspnoea on exertion and not precordial pain.

VARIETIES OF CARDIAC FAILURE.

Twenty-three patients, just over half the total, showed evidence of congestive heart failure. In six cases the right ventricle alone seemed affected, with systemic œdema; and in six the left alone was affected, with pulmonary œdema. The remainder showed failure of both sides of the heart together. Nine of the patients showed a number of cerebral symptoms as described below.

Table 1. Aetiology.

Hypertensive heart disease	..	..	..	..	..	17
Coronary artery disease	..	..	..	..	..	11
"Myocardial degeneration"	..	..	..	..	..	13
Atheromatous aorta	..	..	..	..	..	2
Syphilitic heart disease	..	..	..	..	..	1
Heart block	..	..	..	..	..	1
						—
						45

Table 2. Varieties of Failure.

Congestive failure, right ventricle	..	..	..	..	6
" " left ventricle	..	..	..	..	6
" " both ventricles	..	..	..	..	9
Coronary thrombosis	..	..	..	..	11
Dissecting aneurism	..	..	..	..	1
Multiple embolism	..	..	..	..	1
Stokes-Adams syndrome	..	..	..	..	1
"Progressive cerebral ischæmia," alone	..	..	..	..	10
					—
					45

Eleven patients were diagnosed as coronary thrombosis. This could not be confirmed by electrocardiograph, for lack of facilities. Four of these cases had subsequent fatal attacks and two showed failure of both right and left ventricles later. One patient died after multiple emboli, from atheromatous plaques in aorta and coeliac axis (post-mortem finding). The emboli were found in the pancreas, gut, spleen, kidneys and left femoral artery. Another had a dissecting aneurism of the aorta. Both these men were under sixty-eight years of age. The case of heart block died after several Stokes-Adams attacks.

PROGRESSIVE CEREBRAL ISCHAEMIA.

Nine of the patients showing congestive failure, together with ten other cases not having either pulmonary or systemic oedema, showed a series of mental symptoms which were accompanied by a falling blood-pressure in all those patients in which it was taken. Unfortunately, many of the records of cases have perished through enemy action, so that proper documentation cannot be given.

The first change to be noticed was a vague and muddled state of mind in a patient otherwise well. Thought processes formerly normal now became slow or irregular. Eventually the man or woman came to need help from another person in order to dress properly, to do shopping, etc. So far this was just the senile change commonly seen in old people who are beginning to "fail."

Shortly, however, delusions began to appear. Some of these were of persecution or merely concerned the price of articles. Some disorientation of time and place often occurred at this stage. Failure to recognise friends or relations was also common. If the blood pressure were taken at this time, two groups of cases would be found. On the one hand, patients with figures of 150/80mm. or below, altered little and did not show any signs of cardiac failure. The other group showed pressures around 190/110 and became progressively worse. Nine out of the nineteen cases in this group went into congestive failure. They would usually respond to treatment with digitalis and mersalyl. But, in any case, the cerebral symptoms continued to advance, so that the patients often seemed worse after recovery from congestive failure than while they had oedema.

The next stage was one of increasing restlessness, sometimes going on to violence. The clinical picture resembled the condition known as "cerebral irritation" seen after head injuries. A similar state also followed two cases of cerebral thrombosis occurring in hypertensive subjects. This violence was found to coincide with a marked drop in blood pressure in all cases in which pressures were taken. The blood pressure of seven patients, whose records remain, varied from 130/80 to 105/70 at this stage. All had previous systolic figures around 180-200mm.

As the restlessness passed off, each case became stuporous and incontinent, gradually passing into a terminal coma at pressures of 90/60mm. or thereabouts. After this, the pulse could hardly be detected at the wrist, but one patient lingered three days in this condition.

Four cases of this type, in which the fundus was examined, showed retinal vessels much smaller than the average and quite different from the thickened arteries of the typical hypertensive. No hæmorrhages or exudates were seen. The optic disc appeared normal.

Consideration of the facts related above suggested that the train of symptoms might be caused by a gradual but progressive cerebral ischaemia due to a failing myocardium. This theory was supported by the fact that many of the patients had a very poor peripheral circulation and their hands and feet were cold, blue and cyanosed.

TREATMENT OF SENILE CARDIAC FAILURE.

The treatment of congestive failure in old people is less satisfactory than in younger patients. Tab. digitalis folia, in doses of 1 gr. t.d.s., might prove beneficial in the early stages, but rarely relieved oedema when given alone. More than this usually produced nausea in a short time.

Mersalyl, on the other hand, proved invaluable. Preceded by four doses of a mixture containing ammonium chloride 30 grs. to the ounce, and given intramuscularly or intravenously

once or even twice a week, it almost always produced diuresis in a satisfactory manner. No toxic results were observed in any of the cases, and only two failures occurred in twenty-one cases, most of whom had three or more injections.

Apart from the use of trinitrin (gr. 1/130) in angina pectoris, several vaso-dilators were tried as remedies in arteriosclerosis, either cerebral or systemic. The most effective of these was euphyllin, now called cardophyllin. Six cases of cerebral arteriosclerosis became brighter and more alert mentally on four tablets a day, while their subjective sensations also improved. A control group of six showed no such changes. Such a small number is hardly conclusive.

One case of "myocardial degeneration" showing auricular fibrillation was given quinidine gr. 3 t.d.s. for two days, but the patient asked to have the drug stopped "as it did not suit him." Two other cases with fibrillation improved on digitalis folia gr. 1 t.d.s. for a time, but eventually passed into coma and died.

Conclusions.

1. The three common types of heart disease in the aged are hypertension, coronary disease and "myocardial degeneration."
2. In the cases reviewed, congestive failure was twice as common as coronary thrombosis, and made up about half the total.
3. The syndrome of progressive cerebral ischæmia, associated with a falling blood pressure, is described.
4. The lack of response to digitalis and the value of mersalyl in senile congestive failure is discussed.

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