RHEUMATIC HEART DISEASE COMPLICATING PREGNANCY

RESULTS OF CONSERVATISM

BY

M. K. O'DRISCOLL, M.B., M.A.O., M.R.C.P.I.
M.R.C.O.G.

A. P. BARRY, M.D., M.A.O., F.R.C.O.G.

AND

M. I. DRURY, M.D., F.R.C.P.I.

From the National Maternity Hospital, Dublin

A clinical study of rheumatic heart disease complicating pregnancy was begun at the National Maternity Hospital on January 1, 1948. During the first four years 250 cases were treated, and these have been analysed (Drury *et al.*, 1954). In that series there was no indirect case selection, and the patients were of an age and parity rarely seen elsewhere.

During the subsequent four years 289 similar cases have been observed. These are now presented to show the results that have been attained by conservative management. This series is comparable to the previous one except that, in reference to the mothers, it concludes at the end of the puerperium, a period of six weeks following delivery. It is intended that a prolonged follow-up of all these women will be presented later. During the four-year period some of the women had more than one delivery; each pregnancy is considered as a separate case.

Analysis of 289 Cases

Rheumatic heart disease was diagnosed in 1.4% of all obstetrical patients attending the hospital during the period. The average age of the affected women was 30.8 years and the average parity 3.4. Twenty-five women (8.6%) were older than 40 years and 81 (28%) were pregnant for at least the fifth time. The incidence of the valvular lesions was: mitral stenosis, 272; mitral stenosis and aortic regurgitation, 15; mitral stenosis and aortic stenosis, 2. Thirteen cases with harsh mitral systolic murmurs and a personal history of rheumatic disease are included as "mitral stenosis," in conformity with our original paper. There were five cases of auricular fibrillation and one of bundle-branch block. Subacute bacterial endocarditis was diagnosed once, and active rheumatic carditis three times. Following the recommendation of the New York Heart Association the grading of effort intolerance was: grade I, 130; grade II, 98; grade III, 37; grade IV, 24. There were 34 emergency admissions, and 17 of these were in the more severe grades (III and IV).

The methods of delivery were as follows:

Caesarean section	..	..	2
Forceps or breech extraction	..	..	41
Spontaneous delivery	..	..	236 (3 twins)
Evacuation of incomplete abortion	..	..	4
Complete abortion	..	..	6

Therapeutic abortion was not performed in any case. In no case was labour induced for heart disease. It was induced on six occasions for pre-eclampsia, on three for a minor degree of contracted pelvis with a history of dystocia, and on one occasion each for recurrent pyelitis and for post-maturity. No caesarean section was performed for heart disease. The incidence of this operation was 0.7%. The indication was central placenta praevia in one instance, and in the other was foetal distress which developed in the first stage of labour in a woman of 43 who had no living child. This woman, well compensated throughout (grade I),

developed heart failure in the puerperium (grade IV). Seven mothers who had previously been delivered by the abdominal route were delivered through the natural passages. The assisted vaginal delivery rate was 14%.

Maternal Mortality.—One mother did not survive the puerperium. Her case record may be summarized as follows:

Aged 37, gravida-3. Youngest child aged 10 years. Mitral stenosis and aortic regurgitation. Rheumatic fever at 7 and 15 years. Emergency admission at 20 weeks' gestation in congestive heart failure, grade IV. Frequent attacks of failure had confined her to bed for most of the preceding four years. She suffered from angina at rest. A radiograph showed marked cardiac enlargement. Electrocardiography indicated left bundle-branch block. Her condition remained stationary throughout pregnancy and labour. She died from congestive heart failure 17 days after vaginal delivery. Her infant survived.

We consider that this woman had reached the final stage of the disease, that pregnancy did not shorten her life, and that surgical intervention would not have prolonged it.

Foetal Loss.—To assess the effects of rheumatic heart disease on the foetal survival rate the survey was concluded at the end of the neonatal period (28 days). There were three sets of twins. The results were as follows: surviving infants, 269; stillbirths, 6; neonatal deaths, 7; abortions and miscarriages, 10. Of all conceptions seen, 92% resulted in infants who survived birth by at least one month. The cause of death, based on clinical and necropsy findings, are given in detail. The grade of the mother's heart condition is included. **Stillbirths** (2.1%):—Death was due to intracranial haemorrhage in three instances (grades I, II, and III). One baby died from asphyxia when labour had lasted 24 hours following a period of gestation of 42 weeks (grade I). In one case the foetal heart ceased abruptly early in normal labour. No explanation for the sudden asphyxia was found (grade II). **Neonatal deaths** (2.5%):—Two infants had gross congenital malformations (grades I and IV). Four died from intracranial haemorrhages (grades I, II, III, and IV). One showed cerebral congestion and atelectasis (grade III). **Abortions and miscarriages** (3.4%):—All were spontaneous. In eight cases the heart condition was grade I and in two it was grade II.

Commissurotomy.—Mitral commissurotomy was performed on three patients—at 16, 18, and 30 weeks' gestation. In each patient the subsequent progress was uneventful and the baby survived. When a patient with mitral stenosis responds favourably to medical treatment we defer operation until after delivery. The operation may be life-saving when performed during pregnancy, but such cases are rare. The last patient referred to was admitted to hospital when 12 weeks pregnant. She was a suitable case for operation, but as she responded to conservative measures this was postponed. It had to be undertaken at 30 weeks, when her condition deteriorated.

Conclusion

Because contraception, abortion, and sterilization are not practised by the community from which these women were drawn they were truly unselected. The average age and parity were unusually high. The majority came from poor homes, and there is no official provision for home help in this city. It may therefore be assumed that the series was an unfavourable one and severely tested the form of management adopted. This was strictly conservative, as outlined in our first paper.

The results were purchased at a price. To the individual patient and her family this was the inconvenience of increasing rest and eventual hospitalization. The average stay in hospital before delivery was 20.6 days. To the hospital personnel it was the pressure on antenatal accommodation. These women occupied the equivalent of four antenatal beds continuously over the whole period of four years.

The results justify the conclusion that, no matter how serious the rheumatic heart condition may be, pregnancy should not be terminated at any stage, nor abdominal delivery resorted to.

Summary

The case histories of 289 pregnancies complicated by rheumatic heart disease are analysed.

One mother died before the end of the puerperium (0.3%). Thirteen viable infants did not survive the neonatal period (4.6%). Mitral commissurotomy was performed on three occasions (1%). No caesarean section or induction of labour was performed for heart disease. No therapeutic abortion was performed.

We are grateful to our colleagues at the National Maternity Hospital for their co-operation in the management of these patients.

REFERENCE

Drury, M. I., O'Driscoll, M. K., Hanratty, T. D., and Barry, A. P. (1954). *Brit. med. J.*, 1, 70.

PROGNOSIS OF INTERMITTENT CLAUDICATION

BY

R. L. RICHARDS, M.D., F.R.C.P.Ed.

Senior Lecturer in Medicine, Gardiner Institute, the University and Western Infirmary, Glasgow

More than a century has passed since Brodie (1846) first described in man the symptom-complex which we now call intermittent claudication. He clearly recognized its association with obliterative arterial disease of the main arteries of the lower limbs, and he pointed out that it was frequently a premonitory symptom of what was then called "senile gangrene." Although we still recognize these associations there is little reliable information about the prognostic significance of intermittent claudication. Most physicians are familiar with patients who have had claudication for many years without developing gangrene or any other serious cardiovascular catastrophe, but they can also recall others who, within a short time of presenting with claudication, have lost a limb or suffered a myocardial infarction or had a cerebrovascular accident. Such patients are remembered, but it is difficult to obtain accurate data on what happens to the majority of patients who present with intermittent claudication.

Stammers (1954) has said that nearly all those who complain of claudication at the age of 55 to 60 years are dead within five years. Hines and Barker (1940) reviewed a series of 116 patients with arteriosclerosis obliterans many of whom had gangrene as well as claudication, and found that 54.5% were dead within three years. Spaulding (1956) reported that of 108 patients who had had claudication for more than three years only 13% had died. In a report on a clinical trial of the value of nicotinyl alcohol tartrate in the treatment of claudication Gillhespy (1957) stated that 15 out of 50 patients died before the trial period of 18 months was completed. In view of these conflicting statements it seemed desirable to review a series of patients who had presented with intermittent claudication as their main symptom and who had been under observation for at least five years.

Clinical Material

The material consists of 60 patients who were seen at the Vascular Clinic of the Western Infirmary, Glasgow, prior to December 31, 1951, and who have been under continuous observation for at least five years or who are known to have died during this follow-up period. The presenting symptom in all the patients was typical intermittent claudication, and at the time of their initial examination none of them had more than slight nutritional changes in the feet. Patients with obvious ischaemia of the feet were excluded from the series, so that the results are applicable only to patients who have uncomplicated intermittent claudication. The duration of the claudication before the patients were seen varied from a few days to five years. There were 55 men and 5 women in the series. Their ages ranged from 24 to 69, with a mean of 52.9 years. Exactly half were in the sixth decade; 6 were under 40, and 15 were 60 or more. There were only four diabetics in the series.

Clinical Observations

Type of Peripheral Arterial Disease

Two of the youngest patients in the series, aged 30 and 36 respectively, had thrombo-angiitis obliterans; the remainder were thought to have atherosclerosis (arteriosclerosis obliterans). It is of interest that the youngest patient, who presented with claudication at the age of 24 and who died of myocardial infarction at the age of 27, did not have thrombo-angiitis obliterans but widespread atherosclerosis. The majority (41 patients) presented clinical findings which suggested arterial occlusion at the level of the lower part of the femoral artery or the proximal part of the popliteal artery—that is, they had good femoral pulses in the femoral triangle, but pulsation could not be felt distal to this. In this group the occlusion was initially bilateral in 29 patients and unilateral in 12 (Table I). Four patients

TABLE I.—Type of Peripheral Arterial Disease

Type of Arterial Disease	Unilateral	Bilateral	Total
Atherosclerosis with high occlusion	2	2	4
" " femoral or popliteal occlusion	12	29	41
Atherosclerosis with distal occlusion	2	2	4
" " asymmetrical occlusion	0	9	9
Thrombo-angiitis obliterans	1	1	2
Total	17	43	60

had high arterial occlusions: two had obstruction of the common or external iliac artery on one side only, one had a bilateral iliac occlusion, and one had an aortic occlusion. Four patients had a distal type of arterial disease—that is, they had good femoral and popliteal pulses but absent pedal pulses. In nine cases there was evidence of bilateral arterial disease, but the occlusions were at different levels on the two sides: five had a high arterial occlusion on one side with a femoral or popliteal occlusion in the other limb, and four had a femoral or popliteal occlusion on one side with a distal lesion in the other limb. Four patients, including one of those with thrombo-angiitis obliterans, presented with an acute arterial occlusion; in the remainder the onset of claudication was gradual.

Mortality

Seventeen patients (28.3%) have died during the follow-up period. The cause of death is known for all but two. Seven died of myocardial infarction, three of a cerebrovascular accident, two of congestive cardiac failure, one of the combined effects of diabetes mellitus, tuberculous empyema, and amputation of a leg for gangrene, and two of causes not directly connected with the cardiovascular system—perforation of a peptic ulcer and carcinoma of the pancreas. Analysis of the deaths shows that 13 occurred in patients who were over 50 at the time of their first attendance and only four in patients less than 50. Ten of the