HEART DISEASE IN PREGNANCY: CURRENT TRENDS, CLINICAL PRESENTATION AND OUTCOME OF PREGNANCY IN 77 CASES.

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ABSTRACT

77 cases of heart disease in pregnancy were encountered in our hospital between 1983-1986 during which there were 80,511 deliveries giving an incidence of 0.95/1,000. 34 patients had congenital heart disease (CHD) (Group 1) while 43 patients had acquired heart disease (Group 2). Mitral valve prolapse was the commonest CHD encountered while in Group 2, the patients mostly had mitral stenosis and mitral incompetence. 2 patients had a history of mitral valvotomy while 2 others had mitral valve replacements. No patients had cyanotic heart disease. The majority (58%) of cases had Grade 1 heart disease (NYHA). 81.8% were satisfactorily managed on an outatient basis. 2 patients developed heart failure during pregnancy. 81.8% of patients had spontaneous onset of labour, at a mean of 38.95 ± 2.03 (± S.D.) weeks of gestation. 8 patients had induction of labour while 6 cases required elective Caesarian section. Of those who had spontaneous onset of labour, 42.8% achieved normal vaginal delivery after a mean of 9.06 hours of labour. The average birth weight of babies was 3132 ± 495 (± S.D.)g. The mean Apgar score at 1 min was 8.66 and at 5 min was 8.91. Among those who had induction of labour, 12.5% required Caesarian section. We conclude that Rheumatic heart disease remains the major cause of heart disease in pregnancy in Singapore. The majority of cases are asymptomatic and with proper management, most achieve normal vaginal delivery after a spontaneous onset of labour.

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INTRODUCTION

In modern obstetric practice, pregnancy in a patient with heart disease is no longer an unacceptable hazard. Joint management between the obstetrician and the cardiologist has improved the outcome of pregnancy and reduced maternal risks. The present report is a retrospective study of consecutive admissions of heart disease in pregnancy in Kandang Kerbau Maternity Hospital, Singapore between 1983 to 1986. In this period there were a total of 80,511 deliveries, of which 77 cases had heart disease in pregnancy, including both those of rheumatic and non-rheumatic in origin, giving an incidence of 0.95/1000 deliveries. This is interesting amidst reports of changing patterns of Rheumatic heart disease in the West (1) where it has been observed that there is a decline both in the absolute numbers of Rheumatic heart disease as well as in the severity. We attempt to define the spectrum of patients with the various types of heart disease, their clinical presentation and the outcome of pregnancy.

MATERIALS AND METHODS

The data were compiled retrospectively from all patients with heart disease admitted to Kandang Kerbau Maternity Hospital, Singapore between 1983 to 1986. A total of 77 cases were obtained and their case records analysed. In particular, the clinical presentation of the patients, the types of heart disease encountered, the outcome of labour and neonatal outcome were studied.

RESULTS

a) Population and Disease pattern

From our study population, the mean age of the patients when heart disease was first diagnosed was 22.7 ± 6.15 years (mean ± SD). 34 of our patients (44%) had congenital heart disease while 43 (56%) had acquired heart disease. Of the patients who had congenital heart disease, the majority (50%) had mitral valve prolapse (MVP), the others consisted of 8 cases of ventricular septal defects, 5 cases of atrial septal defects, 3 cases of pulmonary stenosis and one patient with patent ductus arteriosus. All these congenital heart defects were not surgically corrected. None of the patients studied however had cyanotic heart disease or Eisenmenger Syndrome. Of the patients with acquired heart disease, 41 (95%) were of Rheumatic origin. Mitral valve disease, as expected, accounted for the majority of the

Table 1

PRESENTING SYMPTOMS

New York Heart Association Class	n
I	58
II	6
III	4
IV	9
Total	77

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Table 2

GESTATIONAL AGE AT HOSPITALISATION

Gestation (weeks)	n
< 36	2
36	3
37	1
38	2
39	3
≥ 40	3
Not hospitalised until oneset of labour	63

Table 3

TYPE OF CARDIAC LESIONS

Congenital (total = 34)	n
Ventricular septal defect	8
Atrial septal defect	5
Pulmonary stenosis	3
Patent ductus arteriosus	1
Mitral valve prolapse	17
Acquired (total = 43)	
Rheumatic	
Mitral incompetence*	17
Mitral stenosis*	28
Aortic incompetence	4
Aortic stenosis	3
Pulmonary stenosis	1
Non-rheumatic	
Sick sinus syndrome	1
Cardiomyopathy	1

*Mitral incompetence with mitral stenosis = 11

Table 4

MECHANISAM OF LABOUR

	n
Spontaneous labour	63
Induction of labour	8
Elective LSCS	6
Total	77

Table 5

MODE OF DELIVERY FOR PATIENTS WITH SPONTANEOUS LABOUR

	n
Normal vaginal delivery	27
Forceps	35
Vacuum extraction	1
Emergency LSCS	8
Total	63

rheumatic hearts. 17 of the patients had mitral incompetence (MI) while 28 had mitral stenosis (MS). Of these, 11 patients had mixed MI and MS. Aortic incompetence accounted for 4 cases, aortic stenosis for 3 cases while one patient had pulmonary stenosis with MS. Of the mitral valvular hearts, 2 patients had mitral valvotomy before pregnancy and were not on anticoagultion. Another 2 had mitral valve replacement surgery, one with a Starr-Edwards valve and another with a tissue valve. The patient with tissue value was not on anticoagulation while the patient with the ball & cage valve was on Warfarin up till the 37th week of pregnancy when she was hospitalised for therapy with Heparin.

There were two other patients who had non-rheumatic acquired heart disease. One was suffering from the Sick Sinus Syndrome while the other had Cardiomyopathy. None of the patients had a family history of heart disease. There were no patients suffering from ischaemic heart disease.

b) Symptoms and signs

The majority of our patients with heart disease were asymptomatic (81.8%) with respect to the cardiovascular system and only 13 patients had significant dyspnoea (16.9%). By the New York Heart Association Classification, 58 patients were in Class I, 6 belonged to Class II, 4 in Class III and 9 were in Class IV. Two patients had signs of congestive heart failure. One was detected and treated at 24 weeks gestation and the second at 32 weeks. Both responded well to routine anti-failure therapy. The majority of our patients (65%) were managed jointly with cardiologists. 63 patients (81.8%) did not require prior hospitalization for the cardiac problem and were treated on an outpatient basis until the onset of labour (Table 2).

c) Labour

Six of our patients had preterm labour, ranging from 30 to 36 weeks. 63 patients had spontaneous labour, of whom 27 achieved normal vaginal delivery, 35 required forceps and 1 had vacuum extraction. Emergency lower segment Caesarian section (LSCS) was performed on the remaining 8 patients. 8 patients had induction of labour: 2 for cardiac disease, 2 were post term pregnancy, 1 for Preeclampsia, 2 for suspected intrauterine growth retardation and 1 for bad obstetric history. The indication for forceps was mainly to shorten second stage of labour (24 of 35) while the indications for emergency LSCS included previous Caesarian section with Preeclampsia (PE) and breech presentation, poor progress of labour, failed induction of labour and malpresentation.

Six of the patients had elective LSCS. The indications were as follows: 1 was an elderly primigravida with PE, one had a previous Caesarian section and heart disease, one had cephalopelvic disproportion, one had two previous Caesarian sections, one had a Breech presentation and one was post-term with static weight.

The average gestational age at onset of labour was 38.95 ± 2.03 weeks (mean ± SD). The mean duration of labour was 9.05 ± 6.4 hours (mean ± SD).

d) Foetal Outcome

The mean birth weight was 3132.5 ± 497.5 g (mean ± SD) in our series. IUGR was found in only one patient with a birth weight of 1770 g. There was only one stillbirth.

The Apgar score at 1 minute averaged 8.66 ± 1.45 (mean ± SD) and at 5 Minutes was 8.91 ± 0.91 (mean ± SD). None of the babies had congenital heart disease.

In the puerperium, only one mother had cardiac failure. This patient had an elective LSCS the indication for which was 2 previous Caesarean sections. She responded well to treatment. There was no maternal mortality in our study.

DISCUSSION

Although heart disease is often a worrying problem for the obstetrician, our study shows that the outcome of pregnancy is generally satisfatory. In our series, it was observed that there was only one stillbirth and no maternal mortality. Our data of zero maternal mortality compared to Szekely (2)'s 1% and Rush (3)'s 0.7% could be due to our smaller sample size and the absence of cyanotic heart disease and Eisenmenger's Syndrome in our series. Also we benefit from the ready availability of cardiac surgery when indicated (prior to pregnancy).

The overall incidence of heart disease in pregnancy has been reported to be 0.5% by Sugrue el al (4), 3.5% by Mendelson(5), 0.8% in South Africa by Rush et al (3) and 0.9% in Scandinavia by Buemann et al (6). From our study, the incidence in Singapore of heart disease in pregnancy is 0.95 per 1000 deliveries. This is probably because we have confined our study to patients who reached the third trimester of pregnancy. Patients who had spontaneous abortion or termination of pregnancy were excluded. In our series, we found more patients with rheumatic than congenital heart disease. This is in contrast to recent reports in the West (1) suggesting that congenital heart disease has emerged as the major cause of heart disease in pregnancy today. This probably refects the fact that there is a decrease in the number of cases of rheumatic heart disease in the West as standards of living improve.

The majority of our patients were asymptomatic and with proper management, in collaboration with the cardiologist, most achieved normal vaginal delivery after spontaneous onset of labour.

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