Original Research Paper

Gynaecology



Study of maternal and perinatal outcome in heart disease complicating pregnancy in a tertiary institution

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ABSTRACT	 Aims and Objective To analyze the impacts of heart disease on pregnancy. To study the impacts of pregnancy on heart disease. To analyze the possible prognostic factors this will facilitate formulation of guidelines for a safe motherhood. To study the maternal and perinatal outcome. Materials and Methods This is prospective observational study conducted in a tertiary care institute performed during the period between January 201 nd july 2012. All pregnant women with various Heart diseases attending outpatient department in Institute of obstetrics were included in the study.Egmore. Results Incidence of heart disease was 1.41%. The most common heart disease was rheumatic heart disease (48.41%) flowed b congenital heart disease (29.29%). Perinatal mortality in 2.3% and maternal mortality was 4.1% in our study.				
KEYWORDS		Heart disease complicating pregnancy, outcomes in heart disease, maternal mortality, perinatal			

INTRODUCTION:

Heart disease in pregnancy is one among the major medical problems complicating Pregnancy. Heart disease ranks third among the most common causes of maternal mortality next to obstetric hemorrhageand pre-eclampsia. In the presence of maternal heart disease, the circulatory changes of pregnancy may result in decompensation or death of the mother or fetus.1-3 Current risk estimates are primarily based on studies that were retrospective, focused on a particular cardiac lesion, or examined populations managed at a single institution or from an earlier era.1–9When a patient with heart disease becomes pregnant, the already diseased heart is overloaded due to the hemodynamic changes that occur in pregnancy and this poses a risk on the maternal and fetal health and the maternal fetal prognosis become poor. As obstetricians we face the challenge of preventing pregnancy, which is an added burden on the already diseased heart from hastening the rate of decline of patient's general condition. Nowadays comprehensive cardiac care and obstetric care including infertility treatment have improved tremendously and this helps the patients with heart disease to undergo a safe pregnancy and delivery. In a developing country like India even now rheumatic heart disease is the most common cardiac lesion seen in association with pregnancy.

mortality.

AIM OF STUDY:

- To analyze the impacts of heart disease on pregnancy.
- -To study the impacts of pregnancy on heart disease.
- -To analyze the possible prognostic factors this will facilitate
- formulation of guidelines for a safe motherhood. -To study the maternal and perinatal outcome.

MATERIALS AND METHODS:

The study of maternal and perinatal outcome in heart disease complicating pregnancy was conducted in the Institute of Obstetrics and Gynaecology, Egmore, Chennai. This study was performed during the period between January 2011 and july 2012 for 18 months and a total of 302 cases heart disease complicating pregnancy were included in the study.

METHODOLOGY

(I)Meticulous history taking including significant history of

Rheumatic Fever.

(II)History of decompensation in preceding pregnancies (III)Details of the heart disease (IV)Details of medical and surgical treatment of Heart Disease (V)A methodical clinical examination.

INCLUSION CRITERIA:

All pregnant women with various Heart Disease (Rheumatic, Congenital, Valvular, Ischemic etc.,) Who attends OPD in IOG, Egmore.

All antenatal women who were diagnosed to have a Heart Disease and women who had undergone surgeries for the heart were involved in this study.

EXCLUSION CRITERIA:

- All pregnant women without any Heart Disease,

-All pregnant women who do not have heart disease but presenting with symptoms and signs suggestive of heart disease were subjected to meticulous history taking and detailed examination and cardiologist opinion was obtained for these patients and the patients newly diagnosed to have a heart disease were included in the study. Echocardiogram was beneficial in diagnosing an organic lesion of the heart. Once a clinical diagnosis was achieved, these patients were subjected to a series of investigations including complete blood count, random blood sugar, renal function and liver function tests and urinalysis to diagnose and treat anemia and urinary tract infection. Patients were categorized according to NEWYORK HEART ASSOCIATION classification and dealt with accordingly.

Results and Discussion

A total of 338 Cases of heart disease complicating pregnancy were studied. The incidence of heart disease in pregnant patients is 1.41% out of a total of 21,269 deliveries occurred during the study period.

DISTRIBUTION OF TYPE OF HEART DISEASE

TYPE OF HEART DISEASE	NO. OF CASES	PERCENTAGE
RHEUMATIC	165	48.81%
CONGENTIAL	99	29.29%
MVPS	52	5.39%
PPHT	6	1.78%
CARDIOMYOPATHY	9	2.66%
OTHERS	7	2.07%
TOTAL	338	100%

Rheumatic etiology was found in 165 women. The distribution noted were such as Mitral stenosis (MS) in 58 (35.15%) patients, Mitral regurgitation (MR) in 32 (19.39%), MS with MR in 29 (17.59%), Aortic stenosis (AS) was noted in 3 (1.82%), Aortic regurgitation (AR) in 2 (1.21%), AS with AR in 4(2.24%) and Multivalvular in (37) 22.42% patients.

Among the congenital heart disease (99), Atrial septal defect was the most common 40(40.41%) followed by ventricular septal defect 18 (18.18%).

Among the women with cardiac disease the NYHA status was functional class 1 in 100 (29.59%) women were in, 121 (35.8%) in class 2, 80 (23.67%) in class 3, 37(10.94%) in class 4.

22.78% of the patients were diagnosed to have heart disease during pregnancy and 77.22% were diagnosed before pregnancy. 54 patients had undergone surgical had treatment for heart disease.

S. NO	COMPLICATION	NO.OF CASES	PERCENTAGE
1	HEART FAILURE	19	54.28%
2	ACUTE PULMONARY EDEMA	5	14.29%
3	CCF/ ATRIAL FIBRILLATION	5	14.29%
4	EMBOLIC MANIFESTATION	1	2.86%
5	PERMANENT PACEMAKER	2	5.71%
6	SUPRAVENTRICULAR TACHYCARDIA	2	5.71%
7	SEVERE RV OUTLET OBSTRUCTION	1	2.86%
8	TOTAL	35	100%

COMPLICATIONS OF HEART DISEASE

Further complications were noted in 35 women. Heart failure was the most common occurred in 19 women followed by acute pulmonary edema in 5 women.

Vaginal delivery occurred in 182 (60.27%) patients and caesarean section was performed in 119 (39.4%) women and one women died undelivered.

DISTRIBUTION OF PERINATAL DEATH

Reasons for perinatal mortality was respiratory distress syndrome in 3 preterm babies, prematurity in 3 babies, and severe IUGR and birth asphyxia in one term baby. Perinatal mortality is 2.3% in the study.

DISTRIBUTION OF PERINATAL MORTALITY

Out of 297 live born babies, 26 babies required admission into the neonatal intensive care unit. 16 admissions were due to respiratory distress, 2 were due to IUGR, 1 was due to meconium aspiration, 3 admission were due to SGA, 4 admissions were for neonatal care as the mothers had cardiac complications. Out of the 26 admissions, 3 babies expired in the early neonatal period due to respiratory distress syndrome.

ANALYSIS OF DEATH IN PREGNANT PATIENTS WITH HEART DISEASE

There were 14 deaths among the total 338 patients studied. 1 patient died undelivered at 30 weeks of pregnancy. In one patient post-mortem caesarean was done but the baby also died inutero.Cause of death was cardio respiratory arrest in 5 cases, pulmonary edema in 6 cases, hemorrhagic shock in 2 cases, and pulmonary embolism in 1 patient. All cases had been booked elsewhere and they were referred to IOG for further management in a serious condition. Functional status of 11 patients was class I for one patient.

Associated co morbidities noted were, 2 patients had associated cirrhosis of liver with esophageal varices, one patient had chicken pox complicated by viral myocarditis, one was H1 N1positive, 1 patient had pre- eclampsia as coexisting medical disorders.No patient had undergone any surgical correction of heart disease before pregnancy.11 patients were less than 30 years and 2 patients were above 30 years.

11 patients were diagnosed to have heart disease before pregnancy and one patient developed viral myocarditis and one developed peripartum cardiomyopathy. 9 cases were on antifailure drugs and despite treatment the condition deteriorated. In 2 cases there was massive variceal bleeding leading to acute decompensation because of hypovolemia. In one patient there was chicken pox in the last week of pregnancy and patient developed viral myocarditis and went into sudden cardio respiratory arrest on the day of delivery. One patient with critical mitral stenosis acquired H1 N1 infection which proved to be fatal in her on the 7thpost natal day. One patient died on 4thpost natal day due to atrial fibrillation. All other patients developed decompensation in the immediate postpartum period and collapsed and they could not be revived. 4 patients had severe to critical mitral stenosis, 3 had primary pulmonary hypertension, one had large perimembranous VSD, one had MVPA of anterior mitral valve leaflet, one had constructive pericarditis, one had ASD, one had peripartum cardiomyopathy, and one had viral myocarditis.

There was IUD in 4 cases and subsequentperinatal mortality in 3 cases and 6 neonates survived after maternal death.

Fetal outcome and perinatal mortality rate

There were 8 intra uterine deaths and 7 perinatal deaths out of the 304 babies delivered. Perinatal mortality was seen in 6 preterm babies and 1 term baby accounting for 2.3% of the babies in the study. The perinatal mortality in our study was less when compared similar study by beebi et al (13.6%), szekely and snaith (35%), Dipak babu et al (5.4%).

Maternal mortality

Maternal mortality was 4.1% in our study group. The maternal mortality in NYHA class 1 was 0.29% and NYHA class 3 and 4 was 3.84%. The maternal mortality was similar to other studies by Koorin et al (5.6%) and De Swiet (3.8%).

Among the rare heart diseases, Primary Pulmonary Hypertension patients had 50% mortality, Peripartum cardiomyopathy had 25% mortality, Ellis-van Creveld syndrome had 100% mortality.

CONCLUSION:

Heart disease in pregnancy continues to be the majorcause of maternal mortality, preterm birth and perinatal mortality. Favorable outcome in pregnancies complicated by heart disease depends on the following factors:

- 1. Age, socioeconomic status
- 2. Functional capacity of the heart
- 3. Early Booking and better antenatal care
- 4. Comorbid conditions
- 5. Quality of medical care

Once the pregnant patient seeks medical care, risk stratification is achieved and pregnancy is continued in low risk group and the patients in high risk group are counselled for termination if necessary.

Multidisciplinary approach with a team of obstetricians, cardiologist, anaesthetist, neonatologist combined with patient education provides the best opportunity to continue pregnancy with a good maternal and perinatal outcome. In the future, maternal mortality in heart disease patients can be brought down significantly by effective preconceptional counselling, and improvements in medical, surgical, antenatal, and postnatal care and effective motivation for contraception.

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