

PREGNANCY; OUTCOME IN CARDIAC DISEASE

ORIGINAL
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ABSTRACT... Objective: To determine pregnancy outcome in patients presenting with heart disease during pregnancy and labour. **Design:** Descriptive study. **Place & Duration of study:** This study was conducted in Gynae Unit-I, Allied Hospital affiliated with Punjab Medical College, Faisalabad, during a period of 2 years from January 2009 to December 2010. **Materials & Methods:** This study included 74 patients who presented with congenital or acquired heart disease during pregnancy or labour. Patients were evaluated for their cardiovascular status by cardiologist. Relevant investigations done to assess maternal and fetal condition. **Results:** 50 patients (67.6%) were in age group 20-25 years. Congenital heart disease was present in 8 (1.8%) patients while acquired heart disease was present in 66 patients (98.2%). 52 patients (70.3%) achieved term delivery, while 8 patients (10.8%) had spontaneous miscarriage and 14 patients (18.9%) had preterm delivery. 50 patients (76%) had live birth with normal birth weight, 12 patients (18%) had fetuses which were small for gestational age (SGA), 2 patients (3%) had stillbirth and 2 patients (3%) had early neonatal death due to prematurity. **Conclusions:** Heart disease in pregnancy is a high risk condition. Multidisciplinary approach should be adopted in the management of cardiac patient to achieve good obstetric and fetal outcome.

Key words: Pregnancy, Cardiac Disease, Small for gestational age

INTRODUCTION

The incidence of clinically significant cardiac disease in pregnancy is reported to be between 0.1 – 4% with an average in most studies of about 0.8%¹. Cardiac disease is the most common cause of maternal death in U.K.²

Cardiac disease is classified into congenital or acquired heart disease. Congenital heart disease is further divided into acyanotic & cyanotic heart disease. Common acyanotic congenital heart diseases are atrial septal defect (ASD), ventricular septal defect (VSD), pulmonary stenosis, patent ductus arteriosus (PDA), coarctation of aorta (COA) & marfan's syndrome while cyanotic heart diseases are Tetralogy of Fallot's, Eisenmenger's syndrome and pulmonary hypertension. Among acquired heart diseases, the commonest is rheumatic heart disease. Others are coronary artery disease, cardiomyopathies, aneurysms, dissection of aorta and its branches.

Congenital heart disease is encountered more frequently in U.K. as those who have received corrective surgery as children reach child bearing age. Rheumatic heart disease is less common in U.K. but is encountered increasingly in women from developing countries³.

Cardiac disease in pregnancy is a big challenge for both obstetrician & cardiologist. Pregnancy and labour puts the cardiac patient at increased risk for certain complications due to hemodynamic changes that take place in pregnancy, especially an increased cardiac output which may not be tolerated by cardiac patient especially those with obstructive heart lesions such as aortic and mitral stenosis.

Cardiac disease in pregnancy is associated with adverse maternal & fetal outcome and some cardiac disease like Eisenmenger's syndrome and pulmonary HTN are associated with 40% maternal mortality⁴. So these patients are advised to avoid pregnancy or in the event of unplanned pregnancy, to have therapeutic termination⁵.

Most data concerning pregnancy course in cardiac patients are in small series, only a few comprehensive studies are available. The primary objective of present study was to analyze maternal & fetal outcome in women with cardiac disease in a tertiary care hospital at Faisalabad.

MATERIALS & METHODS

The study was conducted during a period of 2 years from January 2009 to December 2010 in 74 consecutive

patients with congenital or acquired heart disease at Gynaecology & Obstetrics Department, Allied Hospital, Faisalabad affiliated with Punjab Medical College, Faisalabad. All cardiac patients who presented either in antepartum or intapartum period were included in study, while those cardiac patients who presented in postpartum period were excluded from study. Some patients were booked in early pregnancy for antenatal care while others were referred from Cardiology Department.

Patients were evaluated in detail regarding their previous obstetric history, cardiovascular history, functional & clinical evaluation (New York Heart Association [NYHA] functional class), ECG, echocardiography.

Laboratory investigations which were done includes Hb, peripheral blood film, red cell indices, serum ferritin to evaluate type & severity of anemia, urine analysis, fasting blood sugar & hepatitis serology. Obstetric scan was done at booking and repeated thereafter on subsequent visits whenever indicated.

Doppler USG and growth scan was done in cases of intrauterine growth restriction. As a protocol, care of patient during pregnancy and delivery was provided by adopting the multidisciplinary approach by cardiologist, obstetrician & anesthesiologist.

Patient with prosthetic heart valves were received Heparin in the 1st trimester and this was converted to Warfarin at 13 to 36 weeks and then again converted to Heparin after 36 weeks of gestation.

Patient presented with preterm labour were not tocolyzed by any agent. Patient coming in labour were again assessed by cardiologist and anesthesiologist. Epidural analgesia was given to patient who presented in early labour while those who presented in advanced labour, either centrally acting analgesia or inhalation analgesia was given. Engometrine was avoided in 3rd stage of labour.

Caesarean section was done only for obstetrics indications. Patient were kept in high dependency unit for 24 – 48 hours after delivery for cardiovascular and

obstetrics monitoring. Obstetrics & fetal outcome was analyzed in terms of miscarriage, preterm delivery, small for gestational age (SGA), stillbirth and early neonatal death. Fetal outcome was considered normal if none of the above fetal complication took place. Operational definitions are:

- I. Miscarriage: (fetal loss before 24 weeks of gestation).
- II. Stillbirth: (fetus born with no signs of life after 24 weeks of gestation)
- III. Preterm delivery: (delivery after 24 weeks but less than 37 weeks of gestation).
- IV. Small for gestational age (SGA): (Fetal weight below the tenth centile for that gestation).
- V. Early neonatal death: (Death in the first week after birth)
- VI. Normal fetal outcome: (Fetal outcome was considered normal if birth weight was within normal range and baby was alive and healthy upto 7 days after birth).

RESULTS

In this study, congenital heart disease was present in 8 (1.8%) patients which acquired heart disease was presented in 66 (98.2% patients). Among the acquired heart diseases, mitral stenosis was the most common. Isolated mitral stenosis was present in 40 patients (60.6%), while mitral regurgitation and mitral regurgitation was present in 12 patients (18.2%). Aortic stenosis was present in 6 patients (9.1%), while 4 patients (6.1%) had multivalve disease. 2 patients (3.0%) had metallic valve and myocardial disease was present in 2 patients (3.0%). 52 patients (70.3%) achieved term delivery, while 8 patients (10.8%) had spontaneous miscarriage, 14 patients (18.9%) had preterm delivery. One patient presented in

second trimester with Eisenmenger's syndrome. She was advised therapeutic termination of pregnancy but patient refused. She underwent caesarean section at 34 weeks of gestation due to intrauterine growth restriction. Route of delivery was vaginal in 54 patients (81.8%), while 12 patients (18.2%) underwent caesarean section due to obstetric indications. Majority of patients 52 went into spontaneous labour while 2 patients were induced.

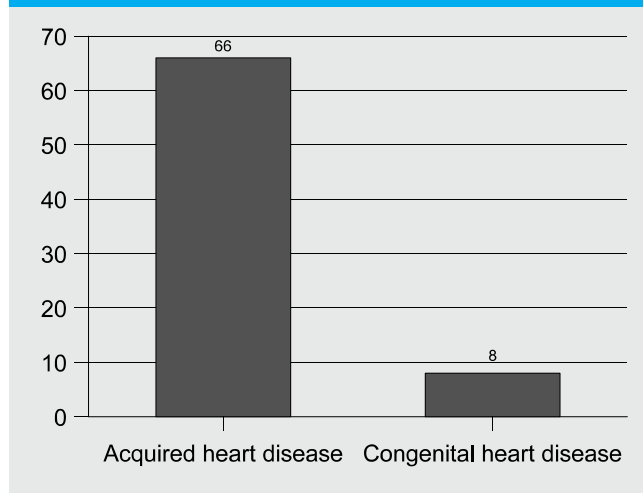
Table-I. Age group

Age in years	No. of patients	%age
20-25	50	67.6
26-30	21	28.4
>30	03	4.0
Total	74	100.0

Table-II. Parity

Parity	No. of patients	%age
Primipara	35	47.3
P ₂₋₃	34	45.9
≥P ₄	05	6.8
Total	74	100.0

Fig-1. Congenital & acquired heart disease



50 patients (76%) had live births, with normal birth weight, while 12 patients (18%) had fetuses which were small for gestational age (SGA), 2 patients (3%) had stillbirth and 2 patients (3%) had early neonatal death due to prematurity, 2 patients who had stillbirth were unbooked who came in labour with compromised fetus. Fortunately, no maternal death took place in this study.

DISCUSSION

In this study, 50 patients (67.6%) were in 20-25 years of

Table-III. Acquired heart disease.

Disease	No. of patients	%age
Mitral stenosis	40	60.6
Mitral stenosis & mitral regurgitation	12	18.2
Aortic stenosis	06	9.1
Multi valve disease	04	6.1
Metallic valve	02	3.0
Myocardial disease	02	3.0
Total	66	100.0

Table-IV. Obstetric outcome

Outcome	No. of patients	%age
Miscarriage	08	10.8
Preterm delivery	14	18.9
Term delivery	52	70.3
Total	74	100.0

Table-V. Route of delivery

Route	No. of patients	%age
Vaginal	54	81.8
Abdominal	12	18.2
Total	66	100.0

Table-VI. Fetal outcome

Outcome	No. of patients	%age
Small for gestational age	12	18
Stillbirth	02	03
Early neonatal death	02	03
Normal	50	76
Total	66	100

age group and 35 patients (47.3%) were primipara which

is comparable to study in Germany where 57.0% patients were primipara⁶. In our study, 8 patients (18%) were with congenital heart disease, while 66 patients (82%) were with acquired heart disease, which is totally apposite to the study where 81% patients were with congenital heart disease and 19% with acquired heart disease⁶. Among acquired heart disease mitral valve disease was the most common, which was present in 52 patients (78%) in our study, followed by Aortic valve which was present in 6 patients (9.1%). This is similar to a study conducted in Islamabad⁷.

Pregnancy outcome was good in 52 patients (70%) who achieved term delivery, while 8 patients (10%) had spontaneous miscarriage and 14 patients (18.9%) had preterm delivery. Mode of delivery was vaginal in 54 (81.8%) patients, which 12 patients (18.2%) underwent caesarean section due to obstetric indications, whereas caesarean section rate in cardiac disease was (31.91%) in a study in India⁸.

Fetal outcome was normal in 50 patients (76%). 12 patients (18%) had fetuses which were small for gestational age (SGA), there was stillbirth in 2 patients (3%) and early neonatal death in 2 (3%), which is comparable to a study in Netherland where SGA was 14%⁹. Majority of patients 73 (96%) in our study were young i.e. < 30 years. Only 3 patients (4.0%) were in age group > 30 years. Age is an important factor because complications are associated with advanced age. After 35 years pregnant cardiac patients are more likely to develop complications which leads to maternal mortality¹⁰.

CONCLUSIONS

Cardiac disease puts the pregnant patients at increased risk for obstetric and fetal complications. The successful management of these patients demands close liaison with obstetrician, cardiologist, paediatrician, anesthesiologist and all the supporting medical staff in order to optimize both mother & her baby.

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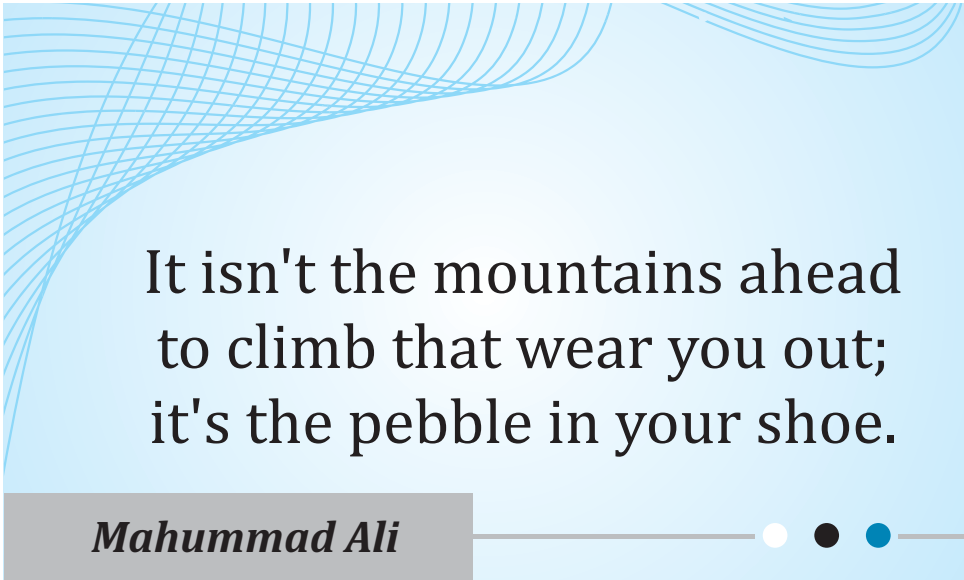
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It isn't the mountains ahead
to climb that wear you out;
it's the pebble in your shoe.

Mahummad Ali