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Gynecology

RHEUMATIC HEART DISEASE STILL CONTINUES TO BE A SIGNIFICANT CAUSE OF MATERNAL MORTALITY-RETROSECTIVE STUDY IN A TEACHING HOSPITAL.

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ABSTRACT **AIM OF THE STUDY:** To assess the trend of maternal mortality due to Rheumatic heart disease compared to earlier days.

MATERIAL AND METHODS: Retrospective study during a 3 year period In a teaching hospital.

RESULT: There were a total of 126 cases of rheumatic heart disease which attended our hospital for delivery in this period. Out of these, 12 cases could not survive. The most common causes of mortality being congestive cardiac failure followed by atrial fibrillation.

CONCLUSION: Preconception care, proper attention to early diagnosis of heart disease in an antenatal mother, continuing cardio obstetric care throughout pregnancy, family planning services can significantly reduce mortality due to heart disease.

KEYWORDS : Rheumatic heart disease, Pregnancy, Preconception counselling, Cardio obstetric care.

INTRODUCTION

Maternal death or **maternal mortality** is defined by the World Health Organization (WHO) as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes." Direct maternal death is the one resulting from a complication of the pregnancy or delivery, or their management. A pregnancy-related death in a female patient with a preexisting or newly developed health problem is described as indirect maternal death. Maternal mortality ratio is defined as the number of registered maternal deaths due to birth- or pregnancy-related complications per 100,000 registered live births.

Cardiac disease in a pregnancy is a high-risk pregnancy, which possess a significant challenge to an obstetrician. It is most commonly due to rheumatic heart disease(RHD), congenital heart disease, less commonly due to ischemic heart disease or cardiomyopathy. Though the frequency of RHD has decreased worldwide, in developing countries like India, RHD is still predominant and a significant cause for maternal mortality.

Pregnancy makes a significant impact on cardiovascular system. Around 15-52% of cardiac abnormalities are diagnosed for the first time during routine antenatal check-ups . At present 0.2-0.4% of all pregnancies in western countries are complicated by cardiovascular disease compared to 1 to 4% of pregnancies in India. (1)The most common clinical features of cardiac lesions like breathlessness, pedal oedema, murmurs which mimic normal physiological changes in pregnancy pose a diagnostic difficulty for obstetricians. However, there is decreased incidence of cardiac disease in pregnancy due to improved facilities and surgical interventions early in childhood. The obstetric complications like pre-eclampsia, anaemia, preterm labor, foetal growth restriction further worsen the outcome and complicate the management of pregnancy with cardiac disease.

Rheumatic heart disease remains a common disease in developing countries like India with mitral stenosis (MS) being the most significant lesion.(2). It can cause significant maternal mortality (1%,0.4% in NYHA class1 and2, 6.8% in NYHA class3 and 4. Maternal morbidity is also high and related to severity of mitral stenosis being 26% in mild MS (mitral valve area >1.5 cm2) to as high as 67% in severe MS (mitral valve area <1.0 cm2). Perinatal mortality and morbidity is also high in severe Mitral stenosis and depending on functional class may be upto 30% in NYHA class4 lesions. Initially medical treatment is tried but interventional/ surgical treatment is the definitive therapy.In current practice minimally invasive percutaneous mitral balloon valvuloplasty (PMBV) is the procedure of choice and has almost replaced the open surgical mitral valve commissurotomy. Balloon mitral valvotomy has been observed to improve maternal and fetal outcome in severe MS during pregnancy. Even longterm obstetric outcome and development of children born to these women has been found to be good.(3).

Ideally women with severe MS should be counseled preconceptionally and should not plan to become pregnant until the interventional correction with either balloon valvuloplasty or mitral valve replacement or valve repair as per the clinical situation is already undertaken. In case of valve replacement surgery with mechanical valves, a lifelong anticoagulant therapy is mandated which is usually oral anticoagulant (warfarin). However, at the onset of pregnancy it needs to be changed to heparin in first trimester to avoid warfarin embryopathy. Endocarditis prophylaxis is also required throughout pregnancy with penicillin. However, in developing world many patients with heart disease present for the first time only during pregnancy. On the other hand in some patients significant MS is already known but they choose only medical management for the cardiac condition, and later they present with pregnancy.However, after presenting with pregnancy, in many severely symptomatic cases (especially with large trans-mitral gradients),an antenatal PBMV may be necessary and it is usually performed in second trimester. PBMV is a minimally invasive interventional procedure which can be performed underlocal anesthesia with significantly fewer fetal complications and a reduction in fetal and neonatal mortality. 4)

Aim of the study: To analyse the contribution of heart disease to maternal mortality in our institution.

Material and Methods: This is a retrospective study done in the department of Obstetrics and Gynaecology, at Government General Hospital attached to Kurnool Medical College, Kurnool during a period of 3 years(from March 2016 till March 2019).Maternal Mortality statistics were collected from the mortality register and cases of deaths due to heart disease complicating pregnancy were studied in detailed, by retrieving case records from the medical records section.

Our hospital is a tertiary care center catering to the needs of near by districts of our state (Andhra Pradesh) and also those of Telangana and Karnataka.

RESULTS:

There were a total of 35,061 live births during this period with a maternal mortality rate of 482 per 10,0000 live births. Out of the total of 169 maternal deaths,12 were to due heart disease complicating pregnancy.There were a total of 126 cases of heart disease admitted into delivery room in that period. There were 7 more cases of suspected heart disease among these 169 cases. Of these, three presented in 2nd trimester,7 in 3rd trimester, one in postoperative period. All these cases were in congestive heart failure at the time of admission.5 of these cases had preeclampsia as precipitating factor,4 were in preterm labor, one had anaemia. One of these patients had intracranial hemorrhage in second trimester due to anticoagulant therapy. Five of these cases were diagnosed before conception,6 were diagnosed in pregnancy and one diagnosed postoperatively.9 were cases of chronic rheumatic heart

disease,3 were cases of cardiomyopathy. 7 died undelivered,3 died few days after delivery,2 died soon after delivery.3 out of 5 babies were live born.

Table : 1 Incidence of heart disease complicating pregnancy and mortality due to the same.

	Total	Heart disease
Deliveries	35,061	126 (0.35%)
Deaths	169	12 (7%)

Table :2 Gestational age at presentation.

Gestational age	Number	Percentage
24-28wks	3	30%
32-34wks	6	50%
37wks	2	20%

Table 3:Timing of diagnosis.

Preconception (4)	Antenatally (7)	Postoperative (1)
10yrs (1)	3 months (1)	4th POD
2yrs (2)	24wks (2)	
6 months (1)	34 wks(3)	
	In labor(1)	

Table 4.Associated complication.

Complication	Number	Percentage
Hypertension	5	45.45%
Preterm labor	5	45.45%
Anemia	1	9.09%
Intracranial bleed	1	9.09%

DISCUSSION:

Rheumatic heart disease remains the commonest cardiac disease during pregnancy in developing countries with MS being the most common lesion.(1) Overall incidence in our country is 1-4%,and in our institute it was 0.35%.Pregnancy induced hyperdynamic circulatory changes cause an increase in left atrial pressure, increased risk of atrial fibrillation and left heart failure with pulmonary edema.MS is classified according to the valve area, mild stenosis (<4 cm2 but >1.5cm2); moderate stenosis (1.5–1 cm2) and severe stenosis (<1cm2). Pregnancy in women with mitral stenosis is associated with an increased maternal morbidity and adverse fetal outcome.

Pregnancy has profound effect on the patient with cardiac disease as it increases cardiac work and their combined effect may exceed the limited functional capacity of the diseased heart. This can precipitate congestive heart failure and pulmonary edema, also sudden death may occur. Maternal mortality may be as high as 15% for all cardiac patients which varies with severity of cardiac problem. In our institute 7% of cases of cardiac disease complicating pregnancy could not be survived. During pregnancy,there are several periods when the danger of cardiac decompensation is especially great.The first one is between 12 and 16 wks gestation when hemodynamic changes begin.But plasma volume starts increasing as early as 6wk gestation and one of our cases was diagnosed in first trimester.

Between 28 and 32 wks gestation, the hemodynamic changes of pregnancy peak and the cardiac demands are at a miximum. About 50% of patients who develop CHF at this stage of pregnancy were in class II or III of the NYHA classification earlier on in their pregnancies.(2).Five out of the 12 cases presented at this gestation. Another dangerous time is during labor and delivery. During labor, every uterine contraction injects about 300-500ml of blood from the uteroplacental circulation. Simultaneously, during the second stage of labor, maternal pushing decreases the venous return to the heart, causing decrease in cardiac output. These sudden and frequent variations in cardiac output during second stage of labor may turn to be critical for some women with underlying heart disease. In our study 6 patients presented in labor,out of which 5 were preterm. Five patients had hypertension as precipitating factor for heart failure,where as one had moderate anaemia at term which precipitated heart failure.

CONCLUSION :

Rheumatic heart disease is the most common etiological factor even with the advent of antibiotics against *streptococcus*. However, the incidence more or less remains the same in developing countries like India. Maternal and neonatal morbidity and mortality can be reduced with adequate antenatal check-ups and early detection of cardiac diseases. Preconception care, proper family planning services can significantly decrease maternal morbidity and mortality due to heart disease.

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