Original Article

Maternal Mortality in Pregnancy with Heart Disease

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Abstract

Introduction: The incidence of heart disease complicating pregnancy is approximately 1–3% of pregnancies and is responsible for 10 to 15% of maternal mortality. While rheumatic heard disease is on real decline in western world, it is adamantly remaining unchanged here in Nepal and persistently contributing to maternal mortality. This article aims to find maternal mortality in cardiac complication in pregnancy.

Methods: From the ongoing maternal mortality study sinceBS 2050(13th April 1993), data from last 15 years (April 1998-2013) were extracted. The data were tabulated and analyzed.

Results: There were 14 12.5%deaths accountable to heart disease in a total 112 maternal mortality during the period of 15 years and they were mostly from rheumatic heart diseaseMost of them were mutivalvular heart disease except for a solitary case of aortic stenosis. MTP (2) Caesarian (3) breech vaginal delivery (1) were performed and spontaneous expulsion was managed along with supportive care delivered in mothers who died shortly after admission.

Conclusion: Poor health seeking behabiour and careless attitude is a part of blame game played often palyed whereas mortality from rheumatic heart disease which is obsolete in global scenario is of utmost concern as cardiac conditions pertaining to this etiology can be minimized certainly and the mortality attributed thus can be reduced. Termination of pregnancy should only be allowed for reason more than valvular lesion like coarctation of aorta.

Key word: Heart Disease, maternal mortality.

Introduction

Maternal mortality has inherent relation with heart disease. It is because the physiological change in the pregnancy with increment in heart rate and stroke volume isimposingdeleterious effect in the ailing heart. Teaching hospital for many years was the only hospital looking after cardiac problems in pregnant women. Despite making best of the effort from multidisciplinary team care/surveillance many women could not make up and succumb to death. This is common scenario in our set up where women come for late booking during echocardiographic monitoringpregnancy in emergency. Herat diseases often coming to knowledge in the index pregnancy and the nature of heart diseases being rheumatic heart disease and not myocardial infarction, cardiomyopathy and congenital heart disease which are reported from the developing country.[1, 2]

This article aims to explore maternal mortality from heart disease, how common it is and what is main type of lesion.

Methods

This study was done in Tribhuvan University Teaching hospital. Maternal mortality from heart disease was extracted from gathered data from ongoing maternal mortality studyongoing from BS 2050(13th April 1993). Of which the data from last 15 years (April 1998-2013) were retrieved for analysis.

Results

In the last 15 years, beginning April 14th 1998- 2013, there were 112 maternal mortality and mortalityfrom cardiac disease, during this period was 14 in number with an incidence of 12.5%. Meaning there was a death every year from heart disease and in other word, heart disease contributed to maternal mortality every year.

Age of women ranged from 21-34 with median age at 26 years. They were G1-G5, and four were primigravidas. Gestational age varied from10 weeks to 38 weeks. POG was less than 28 weeks in 6 cases. Treatment offered was MTP for 2, preterm vaginal birth for two, and cesarean for 3 and nothing for two who died within 2-3 hours of admission. There was PPH, while conductinga preterm vaginal breechdelivery.

Timing of death varied from 2hours to 18 days. Less than 24 hours in three cases.

Excluding a case of myocarditis which in the beginning was labeled as cardiomyopathy with the presentations of pericardial effusion anddying within 3hours of hospital admission, remaining 13 cases were RHD with multivalvular involvement mainly mitral stenosis.

Of the 13 deaths, three pregnancies were less than 28weeks, and in two of them, mortality occurred as aaftermath of medical termination of pregnancy, abortions were performed at 10 and 14-18 weeks of pregnancy in RHD with multivalvular lesions. Table 1.

The third case of RHD, of gestational period less than 28weeks was as associated with recurrent vaginal leiomyoma. Of the remaining 10 cases, two of the cases ere complicated aortic dissection

One that deserves mention is a G3P2+0 at 38+5 RHD MS, moderate TR AR with severe CCF with the diagnosis of aortic root dilatation, detected on Echo with EF 63%, developed shortness of breath on the 4th day of CS and on 15 days postop, underwent emergency Bentall's operation for aortic dissection but unfortunately expired on the same day.

There were total six cases, those that had undergone surgery in majority in mitral valve and one for aortic dissection, latter was undertaken in the post- partum period and in addition to this a case was operated in the index pregnancy at 26 weeks. Tables, 1,2.

Table 1: Heart disease and MTP

Date	Particulars	Cardiac Lesion	Mortality
057/2/6	30, G5P4 14WKS USG 18	RHD MS MR	24H INFECTIVE ENDOCARDITIS
068/07/21 Refd from MMCC Udaypur	26yr G3P2 Preg 10 wk	RHD (post MVR ASD closure), NYHA-III on warfarin	D3 CCU

Table2: Maternal mortality with heart disease.

21 PGR 26 weeks	RHD -3 years CCF PTMC done at 26 weeks	PPROM Assisted Breech Vaginal Del PPH 1000ml 8U FFP, CVP line	CCF & Pulmonary edema Died 4TH POSP DEL
22yrs, PGR 26wks of preg Unbk Nuwakot	Surgery for RHD x 8yr On Tab Amifru OD Lanoxin 0.25mg lasix 40mg Inj Penidura 3wkly	Propped up, O$_2$ Pulse Oximeter & ECG monitoring ET intubation Antibiotics Dobutamine	CPR, DC shock x 2 died in 2h
29 yrs G3P2L1 at 23wks ANC Nil	RHD (Mild MS, AF). Following PTMC 10yrs	digoxin diuretics d12 tachycardia NYHA IV epidural intubated verapamil noradrenalin Esmolol	Cardiac arrest Died D 13 Referred to Ganga lal hosp.

Three of the last cases of heart disease, thatrequirespecial mention is described herewithare:

1. A case of critical MS (MVO 0.7cm) with PAH
2. RHD {moderate MS [1.3cm2], MR grade I, AR grade II) }
3. Lastly a case of RHD associated with PIH and complicated by PROM for 10 hrs, with Moderate meconium stained liquor (MSL). Because of three inherent pathologies involved, development of pulmonary edema and ARF was detrimental in18th day, even after five cycle of dialysis.

Associated Obstetric complication in heart disease were

1. PROM (2)

   PROM PIH (1) with MSL

   PROM with PPH

2. Breech vaginal delivery

Gynecological conditions associated was recurrent vaginal leiomyoma

Other neurological complication was hemiparesis.

Discussions

This study maintains that RHD is the main cause of maternal mortality. Elsewhere it is congenital heart disease, hypertrophic cardiomyopathy, coarctaion of aorta, Takayasu arteritis alone or when it is associated with coarctation of aorta. [4-8]

What we learned from this study is that even today RHD could be one; causing maternal mortality as hardly any deaths has been recorded out of congenital heart disease. The incidence of heart disease complicating pregnancy is approximately 1–3% of pregnancies and is responsible for 10 to 15% of maternal mortality. Situation in our set up is not very different.10When commonest cardiac disorder has to be of rheumatic etiology, naturally the death also has to be from the same factors.

We have dittoed the study findings from West Bengal, projecting rheumatic etiology being the commonest but they in their research have come across many more of isolated disorder remarkably set at 27%. [9]

It is surprising that congenital condition like Eissenmengers and coarctation of aorta were reported to have had safe vaginal delivery and we have lost many young mothers from milder form of heart disease, a real pathetic situation to admit. Needless, to admit even cardiomyopathy and Marfan's have been carefully followed with lesser numbers of maternal deaths, former with six (15.8 %) in many years of study.[10,11]

Majority of the patients presented with complaints of exertional dyspnoea but later was found to regress to CCF and pulmonary edema with complication, perpetuated by PPH. This is because of pumping of more fluid in hurry when there is fixed output. A fatal pulmonary edema has been decribed but for more complexes reason as serious as myocardial infarction.[12]

The other point is PROM, this could be another factors as this is likely to produce infections. More interesting combination we came across is the coexisting finding of ARF.

The messy inclusions of warfarin, heparin and their bothersome switching over in the management of heart diseases in pregnancy are routine course, post mitral valve replacement.[13]It is prudent to accept the following steps in carrying MTP. But there is no such indication MTP for valvular heart diseases in pregnancy and when attempted, MTP can prove more stressful and decompensation for the mother than pregnancy and childbirth. Coarctation of aorta singularly is the only indicated MTP in cardiac disorders in Pregnancy as it stands at risk for dissection or spontaneous rupture.

There has been awakening proceedings in the field of cardiac surgery as of compared to past and in this competition to adapt the best of the best as been documented over the years moving on with closed mitral valvotomy percutaneous mitral valvuloplasty. mitral balloon valvotomy and mitral valvereplacement. [14-20]May be the mothers who died could not afford such surgical capacities or also remain under such drug coverage as a part of economic bearing or rather let's put up as social understanding. Or even special drugs added in cardiology.Balloon mitral valvotomy (BMV) may not affordable to some. Treatment has been designed for aortic valve too. [21]

Conclusion

Poor health seeking behabiour and careless attitude is a part of blame game played often palyed whereas mortality from rheumatic heart disease which is obsolete in global scenario is of utmost concern as cardiac conditions pertaining to this etiology can be minimized certainly and the mortality attributed thus can be reduced. Termination of pregnancy should only be allowed for reason more than valvular lesion like coarctation of aorta.

Conflict of interest: None declared

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