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PERIPARTUM CARDIOMYOPATHY:ITS FREQUNCY AND MATERNAL OUTCOME

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ABSTRACT

OBJECTIVE: *To determine Frequency and maternal outcome in patients with peri partum cardiomyopathy.*
STUDY DESIGN: *Descriptive case series study*
MATERIALS AND METHODS: *Study conducted at Obs/gyn unit II Shaikh Zyed Hospital for Women Chandka Medical College Larkana from January 2008 to December 2009. A total of 25 women who reported in labour room in emergency and diagnosed to have peripartum cardiomyopathy (PPCM) as they presented with breathlessness, oedema and signs of heart failure . Patients with pre existing heart disease, amniotic fluid embolism and cardiac failure due to pre eclampsia were excluded. Patients detailed history taken and electrocardiograph (ECG) and Doppler echocardiogram(Echo) done on all patients to confirm diagnosis.*
RESULTS: *Total deliveries in two years period were 6849. Twenty five(25) patients diagnosed having peripatum cardiomyopathy, that makes its frequency 1 out of every 273 deliveries .The mean age at the time of diagnosis was 30.8 ± 6.74 years; 23(92%) were from lower socio-economic class with poor nutritional status. There were 18 (72%) Multiparous women, while remaining 7(28%) had their first pregnancy. 6(24%) had recurrent PPCM. Almost 19 (76%) presented during post-partum period. 70% had ejection fraction < 30% and 74% had >55 mm of left ventricular end-diastolic dimension. Younger patients, showed better out come as compared to elderly parous women. Two(8%) patients came with twin pregnancy and one(4%) patient gave history of taking tocolytic for long time. Complete recovery was seen in 12(48%) and 5(20%) had persistant cardiomyopathy. Eight (32%) patients died immediately after diagnosis and among them two patients died at the end of six months.*
CONCLUSION: *Peripartum cardiomyopathy is getting commoner especially in poverty riddled area and in those women who are multiparous, advanced age and with previous history of peripartum cardiomyopathy. Improved antenatal care and earlier diagnosis of PPCM can save lot of mothers.*

KEY WORDS: Peripartum cardiomyopathy,post partum heart failure, frequency, maternal outcome.

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INTRODUCTION

Peripartum cardiomyopathy (PPCM) has always been considered as a serious pregnancy related condition from as early as 19th century so, Ritchie, in 1849, described heart failure in late pregnancy and the puerperium associated with a primary heart muscle disease.[1]

Peripartum cardiomyopathy is a critical condition of unknown etiology that occurs in known healthy women all through the pregnancy and peripartum period. The European Society of Cardiology has updated its existing classification of peripartum cardiomyopathy as a form of dilated cardiomyopathy which usually presents with signs and symptoms of heart failure in the last month of pregnancy and up to 5 months of delivery.[2]

The exact incidence of peripartum cardiomyopathy is unknown. It is estimated to occur in one in 3000 - 4000 pregnancies.[3-5] Several risk factors are known to predispose a woman for developing peripartum cardiomyopathy. These include advancing maternal age, multiparity, multiple pregnancy, obesity, tocolytic therapy, pregnancies complicated by chronic hypertension, pre-eclampsia gestational hypertension and black-race.[6] The definition of PPCM should exclude all pregnancy complications like pre-eclampsia, amniotic fluid embolism, pulmonary embolism, and non-cardiogenic pulmonary oedema from other causes. Furthermore, the syndrome should not comprise pulmonary oedema

due to pregnancy-induced hypertension, which entails the spectrum of 'hypertensive heart disease of pregnancy' and has a good prognosis as the symptoms improve rapidly in the puerperium.[7]

Patients with peripartum cardiomyopathy present with typical signs and symptoms of left ventricular failure like fatigue, dyspnoea, orthopnoea, cough, pedal oedema and chest pain and an increased weight gain and the majority of cases occur after delivery and in the immediate post partum period.[8] Mortality rates are found variable in PPCM depending on prevalent risk factors in area, generally range from 25 to 50% in the United States.[9] Some times normal physiologic changes may unmask subclinical or compensated heart disease for the first time as the patient's fluid status increases, so in patients with suspected left ventricular dysfunction, echocardiography is recommended to assist in making the diagnosis.[10]

Introduction of echocardiography has made diagnosis of PPCM easier and more accurate. Recommended Echocardiographic criteria include an ejection fraction (EF) < 45% and fractional shortening < 30% with a left ventricular end diastolic measurement of 4.8 cm/m2 of body surface area.[11] Conventional treatment consists of diuretics, vasodilators, and sometimes digoxin and anticoagulants, usually in combination and patients who fail to recover may require inotropic therapy.[12] Looking at the magnitude of problem, we have conducted a study to know the frequency of peripartum cardiomyopathy and maternal out come at our centre.

TABLE NO: 1

PRESENTATION OF PATIENTS DIAGNOSED FOR PERIPARTUM CARDIOMYOPATHY

VARIABLE	NUMBER (N =25)	PERCENTAGE
SYMPTOMS		
DYSPNOEA	25	100%
CHEST PAIN	12	48%
OEDEMA	9	38%
PAROXYSMAL NOCTURNAL DYSPNEA	4	16%
SIGNS		
TACHYCARDIA	16	64%
ODEMA	15	60%
CHEST CREPTS	22	88%
RAISED JVP	7	28%
POORLVEF(<30%	18	72%

TABLE NO: 2

MATERNAL OUTCOME IN PERIPARTUM CARDIOMYOPATHY

MATERNAL OUTCOME	NUMBER (TOTAL=25)	PERCENTAGE (%)
COMPLETE RECOVERY	12	48%
PERSISTENT CARDIOMYOPATHY	05	20%
DEATH	08	32%

PATIETS AND METHODS

This descriptive study was conducted at labour room Obstetrics and gynaecology department unit II Shaikh Zyed Hospital for women, Chandka Medical College Larkana from January 2008 to December 2009. Undelivered and delivered in last five months who presented with breathlessness and signs and symptoms of heart failure were evaluated for peripartum cardiomyopthy.

INCLUSION CRITERIA

Patients of any age and parity who came with signs of heat failure

Patients in their last trimester of pegnancy and delievered in last five months

Echocardiographic evidence of left ventricular dysfunction/Dilated cardiomyopathy including an ejection fraction of < 45% and fractional shortening of < 30% with left ventricular end diastolic dimension of 4.8cm/m2 or greater at the time of diagnosis.

EXCLUSION CRITERIA

Patients with pre existing heart disease including valvular heart disease,

cardiac failure due to severe pre-eclampsia, fluid overload and amniotic fluid embolism. Patients with normal echocardiographic findings were also excluded from the study. Patients' characteristics including age, race and parity along with information on timing of presentation in relation to gestational age, presenting signs and symptoms, and pregnancy outcomes were recorded. Complete blood picture,blood sugar, liver as well kidney profile done on all patients. All the patients were managed with multidisciplinary approach involving cardiologist,pathologist and anaesthetist. Treatment given included diuretics, digitalis, and antihypertensive drugs like methyldopa, hydralazine and Nifedipine.and anti dysrrhythmic drugs along with ACE inhibitors. Recovery and Maternal outcome was noted in terms of need of medications, death and disability (persistant cardiac dysfunction). All patients followed till six months of delivery and echocadiogaphy done at every visit. Analysis of results was done using SPSS version I0.

RESULTS

Shaikh zyed hospital for women (Chandka Medical College Larkana) is a tertiary care hospital in interior Sindh with main referrals from remote areas and of complicated cases. Total number of deliveries in two year period was 6498 at gyne/obs unit II. There were 25 patients who came with breathlessness during delivery or post partum fulfilled the criteria of peripartum cardiomyopathy. This makes the frequency of 1 out of 273 deliveries. All patients presented in emergency. The mean age at the time of diagnosis was 30.8 ± 6.74 years (range 17 to 40); 23(92%) were from lower socio-economic class with poor nutritional status; and 18 women were (72%) Multiparous; Remaining 7 were in their first pregnancy. A total of 7(28%) women had recurrent

PPCM. Antepartum patients were 6(24%) and 19(76%) presented during post-partum period. Two patients (8%) had twin pregnancy and one (4%) confessed for taking tocolytic since second trimester because of previous preterm births. See table No:1 for patients presentation.

71.4% had ejection fraction < 30% and 74% had >55 mm of left ventricular end-diastolic dimension. 16(64%) had normal babies while 9(36%) patients had either dead baby at delivery or their babies expired soon after delivery. Younger population of patient had significant recovery than those who were elderly parous.

12 Patients (48%) recovered completely while 5(20%) patients either had persistent and progressive disease. (Table-2)

Eight (32%) patients died after diagnosis and two patients among them died at the end of six months. Four patients (16%) died of pulmonary edema and three had cardiac arrest one died of liver failure.

DISCUSSION

Peripartum cardiomyopathy is an unusual form of dilated cardiomyopathy that is often fatal and strikes in the prime of a young woman's life. Many physiologic changes during pregnancy can mimic heart failure as is the first trimester increase in blood volume, which may result in jugular venous distension during the later months of a normal pregnancy pedal edema is often noted so dyspnea and fatigue are common symptoms.[13]

The diagnosis of PPCM should be considered whenever a female patient presents with even mild symptoms of heart failure between the last month of pregnancy and the first 5

months postpartum, a diagnosis of exclusion be made.[14] Sheikh zyed women hospital is a tertiary care hospital in interior sindh with wide catchment area up to borders of Punjab and Balochistan province. At our hospital mostly poor and malnutrited patients report and even they come at late stage, so frequency of PPCM at our one unit remained 1 out of 273 deliveries. Although the incidence of PPCM ranges from 1:3000 to 1:15,000 live births and more prevalant in Aferican countries.[8, 10] It may be variable as apparent from another study that PPCM crops up from the range of one in 1000 live births in South African population, and touching the rate as high as one in 300 in Haiti.[5,15,] while the prevalence of PPCM in the few locales of United States is between 1 in 2000 to 4000 live births. A recent case-control study found an incidence of approximately 1:540 which was higher than that reported in other US series but comparable to that reported in African countries. [16] Another study conducted in Pakistan, a three years review showed 1 per 837 deliveries. [8]

Peripartum cardiomyopathy is actually a type of myocarditis arising from an infectious, autoimmune, or idiopathic process and the risk factors we have focussed so far are Multiparity, twin births, advanced maternal age, pre-eclampsia, gestational hypertension,tocolytic therapy and black race are the known risk factors. [6, 10]

In our study we found the frequency was more in multiparous(72%) and patients belonging to poor socioeconomic group (94%) as asserted by some other studies.[17,18] on the other hand,primiparous women also made a quarter to a third of PPCM patients in our observation. We found in our study two patients had twin pregnancy and one was taking tocolytic which is in consistent with other studies. [8,14] Maternal outcome reported variably in literature. Provision of better facilities and multidisciplinary approach has changed the current scenario but still the mortality has been reported up to 50%. Clinical recovery consists of improvements of symptoms and recovery of left ventricular dysfunction with achievement of its ejection fraction more than 50% and normal echocardiography dysfunction at follow up.[19]In our study 48% patient showed complete recovery at the time of discharge (in two weeks approximately) and only 20%(5 in no:) patient had persistance of disease. Though recovery mostly occurs in the first 2 months, it can take 6 - 12 months.[20] Supported by another study of Elkayam U et al who observed out come in 100 patients of peripartum cardiomyopathy and out of them his 54(>50%) patients had recovery of normal left ventricular function, and concluded his study seeing revitalization in majority of those women who had prior ejection fraction of greater than 30% at the time of diagnosis.[21]Mortality rates roughly of up to 50% have been accounted in the literature.[21,22,23].

Approximately half die within the first month of presentation and the majority within the first three months of postpartum period.[20] As we get most of the patients in emergency and in a poor general condition so at our unit mortality seen in 32% cases and six patients(24%) died within few days of diagnosis and only2 (8%) died at the end of six months. In contrast, studies in Haiti, South Africa and USA maternal mortality reported 15.3%, 15% and 9% respectively [24] and 2.5% in another study during follow up.[25] Mortality rate also reported 9.37% by Hassan JA and collegues at big metropolitan city of Pakistan. [8] Family-planning counselling is an important aspect of the care of patients after a diagnosis of PPCM. Subsequent pregnancy after a diagnosis of PPCM carries higher risk of relapse if not fully recovered and even with full recovery some additional risk of relapse remains there.

CONCLUSION

Peripartum cardiomyopathy is an uncommon form of congestive heart failure and is a rare disease of an unknown aetiology that affects women of child bearing age. Due to poor nutritional status of mother sometimes diagnosis becomes difficult, so requires extra attention. When PPCM is diagnosed then primary goal is definitely to achieve proper multi disciplinary approach to avoid maternal death and disability.

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