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Research Article

IN-HOSPITAL OUTCOME OF PATIENTS WITH PERI-PARTUM CARDIOMYOPATHY IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To assess the incidence, maternal and fetal outcomes in patients with peripartum cardiomyopathy (PPCMP) in a tertiary hospital.
Methods: A descriptive case series study identify 36 patients, having symptoms and signs of left ventricular failure presenting to department of gynecology, Ch. Rehmat Ali Hospital, during their antenatal visit in last trimester to within 5months postpartum meeting the criteria of PPCM were included in the study. Their epidemiological data, risk factors, symptomatology, response to treatment, fetal as well as maternal outcome was recorded. The data was entered and analyzed in SPSS version 20.
Results: The mean age of the patients was 26.4 ± 3.2 years with 77.7% belonging to rural areas and only 22.3% coming from urban areas.The frequency of PPCMP came out to be 1 case per every 768 delivery.The main presenting time was late pregnancy or at labour. 72.3% were having NYHA III/IV dyspnea at presentation.Cardiac failure and Arrhythmias were the main findings followed by thromboembolism with multiparity and chronic hypertension being the main risk factors.
Conclusion: PPCMP, though rare, is an important cause of morbidity in both mother and fetus and needs to be properly addressed.

INTRODUCTION

Peripartum cardiomyopathy is a rare disease characterized by maternal LV systolic dysfunction, the symptomatology ranges from mild dyspnea to congestive heart failure and even leading to death. Its incidence varies widely, mainly related with geography and ethnicity and ranges from 1 in 1300 to 1 in 15,000 pregnancies worldwide.[01] This is a diagnosis of exclusion in pregnant patients who present with signs and symptoms of heart failure during the end of pregnancy and early postpartum period.

The most important risk factors predisposing to PPCMP are maternal age, multiparity, chronic hypertension, obesity.[02] The etiology of PPCMP is widely unknown, mainly linked to some autoimmune process like myocarditis, pregnancy related autoimmune process or some cardiotoxic viruses. [03, 04, 05]

The diagnosis is mainly echocardiographic and there is a recommended criteria for the diagnosis of PPCMP, i.e. 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.[06]

It is associated with significant morbidity and mortality. [07] The prognosis of PPCMP, leading to maternal mortality, can be grave even in developed countries like United States which has been reported to be 25-50% [08]and early diagnosis and proper management can lead to full recovery of LV function. There is not much known about this entity in our population especially patients presenting to tertiary hospitals so the current study was carried out.

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MATERIALS AND METHODS

Patients presenting to gynecology department of Ch. Rehmat Ali Hospital in there last trimester and within 5 months postpartum, with symptoms and signs of LV failure were included in the study. Detailed Echocardiography was done to rule out the cause of the dyspnea. A total of 36 patients met the echocardiographic as well clinical criteria of PPCMP and these patients were then subjected to detail history, examination, mode of delivery, hospital stay, complications and were followed for six months from there diagnosis. All the data was entered and statistical analysis was done in SPSS version 20.

RESULTS

The study period was of one year from 01st Feb, 2015 till Jan 30th, 2016 during which 2134 deliveries were done in gynecology department and 36 patients were diagnosed as having PPCMP. The frequency of PPCMP comes out to be 1 case per every 768 delivery. The mean age of the patients presenting were 26 ± 3-8 years with 78% belonging to rural areas and only 22% coming from urban areas so showing that

major chunk of the disease is from mostly uneducated low socioeconomic status. Majority of patients (66.6%) develop the disease during the last trimester of the pregnancy (Table 1)

72.3% of patients presented with NYHA III /IV symptoms, with multiparity (58.3%) being the main risk factor followed by chronic hypertension (52.7%) and obesity (25%) as shown by the Table 1.

63.8% of patients had ejection fraction less than 30% showing the severity of the disease in our population with only 22.3% recovering to normal LV function within 6months. The main complications developed during hospital stay were, heart failure (25%), arrhythmias (22.3%), thromboembolism (2.7%) with only one patient developing LV clot which resolved after 6months with treatment.

Table 1 Characteristics of patients with PPCM:

Age	Frequency	Percentage
20-30	25	69.4
>30	11	30.6
Parity		
1	01	2.7
2	14	38.8
>3	21	58.3
Residence		
Rural	28	77.7
Urban	08	22.3
Gestational Age		
Antepartum	24	66.6
Postpartum	12	33.4
NYHA		
1	03	8.3
2	07	19.4
3	17	47.3
4	09	25
Risk factors		
Chronic HTN	19	52.7
Diabetes	12	33.3
Smoker	05	13.8
Obesity	09	25
Multi-Parity	21	58.3

Spontaneous vaginal delivery was the main mode (66.6%) of delivery and (75.5%) of babies were healthy with (19.4%) born with IUGR. No fetal and maternal death was noted in the study population (Table 2).

Table 2 Mode of delivery, Fetal and Maternal complications

Maternal	Frequency	Percentage
Mode of delivery		
SVD	24	66.6
C Section	12	33.4
Complications		
CHF	09	25
Thromboembolism	01	2.7
Arrhythmias	08	22.3
LV Clot	01	2.7
Death	00	00
LVEF% <30	23	63.8
LVEF% 30-50	13	36.1
Recovery of LV function	08	22.3
Fetal		
Alive and healthy	27	75
Still born	02	5.5
IUGR	07	19.4
Death	00	00

DISCUSSION

Peripartum cardiomyopathy (PPCM) is a rare cause of heart failure (HF) in pregnant women at the time of or following childbirth that may be potentially fatal. It is defined as an 'idiopathic cardiomyopathy presenting with heart failure secondary to LV systolic dysfunction towards the end of pregnancy or in the months following delivery, where no other cause of heart failure is found'.[09]The modified definition includes:

- Development of heart failure in the last trimester or within six months postpartum
- Absence of any identifiable cause
- Absence of any recognizable heart disease before the last trimester of pregnancy
- Echocardiography criteria: ejection fraction 2.7 cm/m2 of body surface area.[10]

The incidence of this condition varies from 1:15000 to 1:100 deliveries across the world[11] and especially in Asian region very little is known. In a study from south India, the incidence of PPCMP has been reported at 1 case per 1374 live births[12] while our study showed a relatively higher incidence at around 1 case per768 deliveries.

PPCM has been reported mostly in women older than 30 years.[13, 14&15]In our study the mean age of patients diagnosed with PPCM was 26.4 ± 3.2 years.

Cardiac dysfunction secondary to PPCM can lead to arrhythmias. In our study atrial fibrillation was the arrhythmia noted in all (22.3%) the patients which is also evident from the study by Iseuzo SA. [16]

Patients with PPCMP are at high risk for thrombus formation mainly due to two reasons, thromboembolism due to the hypercoagulable state of pregnancy and blood stasis secondary to LV dysfunction[17]. In our study, only one patient had embolic ischemic events and the same patient had LV apical thrombus secondary to severe LV systolic dysfunction.

Limited data is available to guide the timing and mode of delivery in PPCM. European society of cardiology working group statement 2010 states that early delivery is not required if both, maternal and fetal conditions are stable[18]. Our majority of patients (66.6%) had SVDs and only 34.4% had to undergo cesarean and that was mainly due to obstetrical reason.

There are number of studies who have evaluated the pregnancy outcome with PPCMP[19]. The largest series of 123 cases of PPCMP showed a cardiac transplantation rate of 4% and a mortality rate of approximately 10% at a mean follow-up of about 2 years[19]. The prognosis of PPCM varies in literature, but prognosis is currently encouraging with advanced management. Fortunately no mortality, both in mother as well as fetal, was recorded in our study.

Studies showed that recovery to an LVEF above 50 percent occurred in 54% of patients, and the degree of recovery was greatest in those with a baseline LV ejection fraction >30% [19, 20] but one study showed that baseline LVEF can't be relied for prediction of improvement in individual patients [21]. Our 36.1% patients were having LV systolic function above 30% with rest having severe LV systolic dysfunction and 22% of PPCMP patients recovered left ventricular ejection fraction along with clinical improvement preceding the LVEF improvement favoring the result of the study that baseline EF is a strong predictor for future recovery of LV function. On the contrary one reason for low number of recovery of LV

function may be the small time of follow-up as usually complete recovery usually takes more than a year.

It may be stated that PPCMP, though being uncommon, but carries significant morbidity both to fetus and mother. Proper counselling, identification of risk factors and their management in pregnant patients may reduce the occurrence of the disease.

References

1. Fennira S, Demiraj A, Khouaja A, Boujnah MR. Peripartum cardiomyopathy. Annales de Cardiologieet D'angéiologie. 2006; 55(5):271-5.
2. Heider Al, Kuller JA, Strauss RA Wetts SR. Peripartumcardiomyoathy: a review of the literature. ObstetGynaecolSurv 1999; 54: 526-31.
3. Pearson GD, Veille JC, Rahimtoola S, Hsia J, Oaklty CM, Hosenpud JD *et al*. Peripartum cardiomyopathy. National heart, lung, and blood institute and office of rare diseases (National Institute of Health) workshop recommendations and review. JAMA 2000; 283:1183-8.
4. Ansari AA, Fett JD, Carraway RD, Mayne AE, Onlamoon M, Sundstrom JB. Autoimmune mechanisms as the basis for human peripartum cardiomyopathy. *Clinical Review Allergy Immunolgy* 2002; 23: 289-312.
5. Fett JD. Understanding perpartum cardiomyopathy, 2008. Int J Cardiol 2008; 28.
6. Chapa JB, Heiberger HB, Weinert L, Decava J, Lang RM, Hibbard JU, *et al*. Prognostic value of chocardiography in peripartum cardiomyopathy. Obstetrics &Gynaecology 2005; 105: 1303-8.
7. Sliwa K, Fett J, Elkayam U. Peripartum cardiomyopathy, Lancet, 2006, vol. 368 pg. 687- 693.
8. Lee W. Clinical management of gravid women with peripartum cardiomyopathy. ObetGynaecol Clin North Am 1991; 18: 257-71.
9. Hasan JA, Ramejo BB, Qureshi A, Kamran A: Peripartum cardiomyopathy characteristics and outcome in a tertiary care hospital. *J Pak Med Assoc*. 2010, 64 (5): 377-380.
10. Pearson GD, Veille JC, Rahimttola S. Peripartum Cardiomyopathy; National Heart, Lung and Blood Institute and Office of Rare Diseases (National Institute of Health) workshop recommendation and review. JAMA. 2000; 283:1183-88.
11. Sliwa K, Damasceno A, Mayosi BM: Epidemiology and etiology of cardiomyopathy in Africa. Circulation. 2005, 112: 3577-3583.
12. Vinay P, Sirish S, Ashwini K, Afrin S: Incidence and outcome of peripartum cardiomyopathy from a tertiary hospital in South India. TROPICAL DOCTOR. 2009, 39: 168-169. 10.1258
13. Ahmed I, Masroor M, Qamar R, Hashim KA, Sattar A, Imran K, *et al*. Risk factors associated with peripartum cardiomyopathy. Pak Heart J Dec 2003; 36: 4-8.
14. Avila WS, deCarnelro ME, Tschaen CK, Rossi EG, Grinberg M, Mady C, *et al*. Pregnancy and peripartum cardiomyopathy. A comparative & prospective study. Arq Bras Cardiol 2002; 79:489-93.
15. Sharieff S, Zaman KS. Identification of risk factors and demographic features of patients with peripartum cardiomyopathy. *J Pak Med Assoc* 2003; 53: 297-300.
16. Isezuo SA, Abubakar SA: Epidemiologic profile of peripartum cardiomyopathy in a tertiary care hospital. Ethn Dis. 2007, 17 (2): 228-233.
17. Walsh JJ, Burch GE, Black WC, Ferrans VJ, Hibbs RG: Idiopathic myocardiopathy of the puerperium (Postpartal Heart Disease). Circulation. 1965, 32: 19-31.
18. Sliwa K, Hilfiker-Kleiner D, Petrie MC, Mebazaa A, Pieske B, Buchmann E, Regitz-Zagrosek V, Schaufelberger M, Tavazzi L, van Veldhuisen DJ, Watkins H, Shah AJ, Seferovic PM, Elkayam U, Pankuweit S, Papp Z, Mouquet F, McMurray JJ: Heart Failure Association of the European Society of Cardiology Working Group on Peripartum Cardiomyopathy: Current state of knowledge on aetiology, diagnosis, management, and therapy of peripartum cardiomyopathy: a position statement from the Heart Failure Association of the European Society of Cardiology Working Group on peripartum cardiomyopathy. *Eur J Heart Fail*. 2010, 12: 767-778.
19. Amos AM, Jaber WA, Russell SD: Improved outcomes in peripartum cardiomyopathy with contemporary. Am Heart J. 2006, 152: 509-513.
20. Elkayam U, Akhter MW, Singh H, Khan S, Bitar F, Hameed A, Shotan A: Pregnancy associated cardiomyopathy: clinical characteristics and a comparison between early and late presentation. Circulation. 2005, 111: 2050-2055.
21. Goland S, Bitar F, Modi K, Safirstein J, Ro A, Mirocha J, Khatri N, Elkayam U: Evaluation of the clinical relevance of baseline left ventricular ejection fraction as a predictor of recovery or persistence of severe dysfunction in women in the United States with peripartum cardiomyopathy. *J Card Fail*. 2011, 17: 426-430.

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