



Original Article

The Evaluation of the Obstetric Outcomes in Re-Pregnancy after Recovery from Peripartum Cardiomyopathy

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ABSTRACT

The exceptional form of pregnancy specific idiopathic congestive heart failure is known as peripartum cardiomyopathy. Its onset is highly observed during the last month of pregnancies. **Objective:** To evaluate the cardiac outcomes in the subsequent pregnancies of patients having history of the cardiomyopathy. **Methods:** It is a retrospective cohort study conducted at Gynae unit Timergara Teaching hospital Dir Lower KPK for the duration of one year from March 2021 to March 2022. The seventy six patients that had history of peripartum cardiomyopathy with re-pregnancy were selected for the study. The participants were aware of the study and written consent was signed by them. The echocardiography examination of each patients were reviewed. The demographic data maternal and neonatal outcomes data of index was recorded. The SPSS software was used for the statistical analysis of the data. **Results:** Data of seventy six patients that had history of peripartum cardiomyopathy with re-pregnancy were evaluated. The average age of mother at the time of delivery was 26 years. There were 30 patients that reported about mood disorders and they were already taking medications during the pregnancy. 15 patients reported about migraine headache. There were only small number of patients that had prior diagnosis of cardiovascular diseases. The chronic hypertension was observed in 3 patients and 4 patients had Wolf-Parkinson-White syndrome. **Conclusions:** In this study the effect of re-pregnancy on cardiac outcomes were studied among patients who had a history of peripartum cardiomyopathy. Patients having peripartum cardiomyopathy history and recover LV function are at risk for a transient minor decrease in LV ejection fraction during future pregnancies. The promising obstetric and neonatal outcomes were observed.

INTRODUCTION

The exceptional form of pregnancy specific idiopathic congestive heart failure is known as peripartum cardiomyopathy. The other name for the peripartum cardiomyopathy is postpartum cardiomyopathy. Its onset is highly observed during the last month of pregnancies [1, 2]. The cause for its onset remained undeterminable. The underlying mechanism explaining cause of peripartum cardiomyopathy is not discovered yet. However different researches have reported the hemodynamic stress, microchimerism, viral myocarditis and hormonal insults as the cause of the disease. This terminology was first defined in 1849 [3]. Depending upon the race and geographical regions the incidence and prevalence of the postpartum

cardiomyopathy vary greatly. The incidence of peripartum cardiomyopathy is increasing day by day. The incidence of the cardiomyopathy in the United States is reported to be 10 in every 10,000 live births. However the regions like Asia and Africa are reported the higher incidence of the disease, it is more prevalent in these regions. In Asia, the every one out of 837 deliveries are effected by the cardiomyopathy. In a recent study the incidence of cardiomyopathy is reported to be One in every 968 births [4, 5]. The maternal demographics are evolving with the passage of time. The mortality and morbidity rates are observed to be raised with the increasing incidence of the disease. The clinical outcomes varies from early recovery to eventually

morbidity and mortality of the patients. The recovery time periods of the patients also vary from 2 months to the 6 months and eventually the period of the extra-cardiac morbidity. The percentage incidence of sudden death, thrombolytic events and heart failure is reported to be vary from 10-30% [1, 6]. The survival ratio is improving because of advancement in the rehabilitation programs and improvements in the cardiac care and disease recognition methodologies. Variables long-term outcomes are associated with the postpartum cardiomyopathy. The chronic heart failure development is observed in the 25% of the patients suffering from cardiomyopathy. The heart failure relapse risk is reported to be 30% in the population. In a clinical practice the preconception cardiac stress testing has a limited predictive role [7]. Due to the limited and sparse data available on the obstetric outcomes in the re-pregnancy the cardiomyopathy is posing a challenging conditions for the cardiac surgeons. To optimize the patient's volume status the standardized hear failure therapies are normally used. To improve the ejection fraction the cardiac resynchronization therapy is proved to be highly effective. It is also adding to the expense of the medics. The study aimed to evaluate the obstetric and neonatal outcomes in the patients with subsequent pregnancy having the history of the cardiomyopathy[8, 9].

METHODS

The seventy six patients that had history of peripartum cardiomyopathy with re-pregnancy were selected for the study. The participants were aware of the study and written consent was signed by them. The ethical and review board committee of our hospital approved the study. According to the inclusion criteria, the women having history of cardiomyopathy development within 5 months of delivery or in last month of pregnancy were included in the study. The cause of cardiac failure was not diagnosed in the included patients. All the patients in which cardiomyopathy was not confirmed after diagnoses were excluded from the study. The patients' medical history was recorded. The data about the subsequent pregnancies and obstetric outcomes of index were also recorded. The echocardiography examination of each patients were reviewed. The demographic data were recorded. The SPSS software was used for the statistical analysis of the data. The median and binary variables were assessed. The increase of LVEF to 50% or more is characterized as LV function recovery.

RESULTS

Seventy-six patients that had a history of peripartum cardiomyopathy with a repregnancy were identified and selected to check the effect of re-pregnancy on cardiac outcomes in patients that were suffering from peripartum

cardiomyopathy. The participants were aware of the study and written consent was signed by them. 26 years was the calculated average age of the mother at the time of pregnancy. There were 30 patients that reported about mood disorders and they were already taking medications during the pregnancy. 15 patients reported about migraine headache. There were only small number of patients that had prior diagnosis of cardiovascular diseases. There were 3 patients that had chronic hypertension and 4 patients had Wolf-Parkinson-White syndrome. There were only 9 patients whose body mass index was clearly known. And the average body mass index was 25.6. All these pregnancies resulted in healthy babies with 8 cases of preterm deliveries. There were 6 cases where there were twin gestations. The reasons of prematurity came out to be pre-labor rupture of the membrane in case of 3 patients and in case of 8 patients pre-labor was due to hypertension disorders. Cardiomyopathy was observed antenatally in case of 6 participants. There were 63 patients who were reported to develop cardiomyopathy in their postpartum duration. Most of the women reported the onset of signs and symptoms after the first week of delivery. Relapse of the Peripartum cardiomyopathy took place in case of 20% of the pregnancies. Relapse was diagnosed by doctors in the last month of the pregnancy. The ratio of relapse was same in patients that had hypertensive disorders as compared to women not having it.

Features	Percentage (n=76)
Age	26 years
Chronic hypertension	4% (3)
Heart diseases	2% (2)
Mood disorders	10% (8)
Migraines	5% (4)
Smoking	3% (3)
Twin pregnancies	4% (3)
Preterm labor	4% (3)

Table 1: The basic features of the patients

Features/characteristics	Value in percentage (n)
Time of diagnosis	
Antepartum	4% (4)
Postpartum	84% (64)
Signs and symptoms	
Palpitations	3% (3)
Chest pain	1% (1)
Echocardiography characteristics	
LVEF (%)	33% (25)
Beta blockers	17% (13)
Cardiac arrest	1% (1)
Recovery	24% (18)

Table 2: The index pregnancy n=76: characteristics of Peripartum Cardiomyopathy

Outcomes	Values
Miscarriage	6(14%)
Abortions	4(9%)
Still birth	0
Live birth	33(75%)
Preeclampsia	3(6%)
Cesarean delivery	22(51)
Intrauterine growth contractions	1(3%)

Table 3: Obstetric outcomes in subsequent pregnancies(n=45)

DISCUSSION

With more advances research in the field of science the medical care regarding peripartum cardiomyopathy has improved and it has helped patients to consult their doctors about another pregnancy. As per the guidelines of European Society of Cardiology the consequent pregnancies should not be encouraged in patients that had non-recovered ventricular system. It was directed to these patients that there is no need for even consultation regarding a new pregnancy with their doctors as the chances of recurrence will be increased with a new pregnancy. Another scientific statement by American Heart Association gave similar sort of guidelines. There was no evidence based instructions regarding the reproductive and obstetric counseling of the patients who had prior diagnosis of peripartum cardiomyopathy [10, 11]. The relapse rate of peripartum cardiomyopathy, in this study, was found to be less than the relapse rate reported by previous studies. As most studies have reported it to be more than 30% and in our studies it was 20%. However, the relapse definition has some variations in the literature so direct comparisons cannot be done. There were several studies that linked the occurrence of heart failure during pregnancy in case of such patients even without any decrease in value of LVEF [12]. As reported by a previous study relapse took place in case of 17% of the pregnancies and the patients had LVEF of greater than 55%. There were a total of 9 relapse found in this study, among those 9 cases the LVEF nadir was low as the index diagnosis that indicates the mild form of cardiomyopathy in these pregnancies. All the patients who had a relapse recovered their LV function in a duration of 1 month. As the chances of LV recovery after relapse are good that's why patients who had prior peripartum cardiomyopathy with recovered LV function can be said to have 20% risk of relapse in the future pregnancy [13, 14]. The data regarding the obstetric and the outcomes of cardiac events among these patients with non-recovered LVEF prior to pregnancy was insufficient. Therefore, no recommendation of guidance can be offered to these group of patients. the chance of relapse with LVEF lower than 50% prior to pregnancy ranges from 38% to 52% as per studies that suggest an elevated chance of more damage of LV function in this

group of patients [15]. In our study when the obstetric outcomes were studied it was found that there were no cases of stillbirth, and the miscarriage ratio was also less as compared to other results. All the live births completed their 36 weeks of gestational period. The conditions like postpartum hemorrhage and hypertensive disorders were seen in the index pregnancies and the reoccurrence rates were quite elevated in such cases. In this study it was found that there was elevated rates of lactation in the subsequent pregnancies, that is of great significance as most of the nutritional and immunologic benefits that the baby gets after birth are from lactation. However, this study was not related to finding the effect of lactation in causing cardiac dysfunction, however it was reassuring to find that the lactation had no effect on the peripartum cardiomyopathy [16]. As per recent studies it was found that the re-pregnancy results among the patients who had cardiomyopathy history showed that the use of bromocriptine played a significant role in the treatment of heart failure and positive results were associated with its usage. In our studies no patient reported the use of bromocriptine so the outcome could not be reassured. However, in our study majority of the patients, even before their pregnancy recovered their LEVF [17, 18], so may be that bromocriptine does not gave useful benefits in this subset of patients. In this study all the patients included were managed by specialists and hardworking group of doctors at the tertiary care center [19]. These results could not be found in centers that have limited resources. One of the strengths of this study was that the single group of patients they chose had large number of pregnancy cases. However, the patient volume could be increased and data from different hospitals can be taken for further studies so that variations in data of patients from different clinics can be studied to make further outcomes [20, 21].

CONCLUSION

In this study the effect of re-pregnancy on cardiac outcomes were studied among patients who had a history of peripartum cardiomyopathy. There was some important information found regarding the obstetric and cardiac results in patients that had peripartum cardiomyopathy. However, there is further need to verify and reassure the results to determine the optimal strategies of management.

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