

Peripartum cardiomyopathy: characteristics and outcome in a tertiary care hospital

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Summary

Purpose of investigation: Peripartum cardiomyopathy (PPCM) has been traditionally regarded as a condition with a poor prognosis. We studied the acute and long-term outcomes in patients with PPCM in a tertiary care hospital.

Methods: Patients with PPCM admitted to our hospital from June 1990 to February 2002 who had documented left ventricular (LV) dysfunction by echocardiographic criteria were retrospectively reviewed.

Results: Out of ten patients who fulfilled the criteria for the diagnosis, six (60%) had severe, and four (40%) had moderate LV dysfunction at echocardiography. None had evidence of other chronic disease. Treatment consisted of fluid restriction, diuresis, and afterload reducers in all, and intravenous inotropes in three (30%) of the patients. No patient died while in hospital or during follow-up. All patients showed improvement in their clinical condition and LV function on follow-up which normalized in seven (70%).

Conclusion: PPCM might carry a relatively good prognosis in patients with absence of associated disease conditions.

Key words: Peripartum cardiomyopathy; Outcome.

Introduction

Peripartum cardiomyopathy, the occurrence of cardiomyopathy in the peripartum period in women without pre-existing heart disease, is an uncommon but serious condition. It has been defined as the occurrence of left ventricular systolic dysfunction and heart failure in the last month of pregnancy or within five months of delivery in women without previous heart disease [1]. The incidence varies according to series with about 1,000 to 1,300 women affected in the United States each year [1]. In this article, we review patients with PPCM at the American University of Beirut Medical Center with special emphasis on immediate and long-term outcomes.

Materials and Methods

Patients admitted to our institution from June 1990 to February 2002, with the diagnosis of PPCM were retrospectively reviewed. Patients with other possible causes of heart failure were excluded. Ten patients fulfilling the criteria for the diagnosis of the condition according to the previously mentioned definition were identified. All patients had left ventricular (LV) dysfunction by echocardiographic criteria.

Results

Demographic characteristics

All patients were white, with a mean age at presentation of 33.7 years (range 19 to 46). None of the patients had evidence of chronic illness. Fifty percent were multiparous during their index pregnancy but none of these had a history of previous PPCM, and 50% had multifetal gestations. However, all the patients were either multiparous or had multifetal gestations. Half of the patients had a normal vaginal delivery and the rest delivered by

Cesarean section. The average birth weight for all the newborns was 2,870 g (Table 1).

Clinical presentation

All patients presented after delivery with a mean presentation time of 17 days (range 1 to 40). Seven (70%) of the patients were in New York Heart Association (NYHA) class III at presentation and the remaining were in class II. All the patients received standard therapy for heart failure with salt and fluid restriction, angiotensin converting enzyme inhibitors and diuretics. Three patients (30%) necessitated intravenous inotropes. The mean duration of hospital stay was 13 days with a range of two to 47 days. No in-hospital maternal death occurred. However, one patient developed refractory bleeding necessitating hysterectomy for control. This patient also had a stillbirth. The rest of the newborns were in good medical condition.

Echocardiographic findings

Two groups of the patients were identified based on the degree of LV dysfunction by echocardiography. Six (60%) patients had severe LV dysfunction with an ejection fraction (EF) of < 25%. Their end-diastolic diameter (EDD) was 5.4 mm and average EF was 21%. The remaining four patients had moderate LV dysfunction with an EF between 25 and 40%. Their EDD was 5.7 mm and average EF was 34% (Table 2).

Follow-up

Patients were followed up clinically and with serial echocardiographic studies at almost regular intervals until their clinical and echocardiographic findings stabilized. All the patients showed improvement in these two parameters; seven patients (70%) were in NYHA class I at the end of the follow-up with normal LV systolic function by echocardiography and the remaining three

Table 1. — *Characteristics of patients with peripartum cardiomyopathy.*

#	Age (yrs)	Parity during index pregnancy	Multifetal gestation	Time of presentation	Class at presentation	Mode of delivery	Birth weight (kg)	Class at follow-up
1	19	2	Yes	2 days pp	III	NVD	2.3	I
2	36	0	Yes	1 day pp	III	C/S	1.9	I
3	42	8	Yes	27 days pp	III	NVD	2.2	I
4	38	1	No	2 days pp	III	C/S	3.2	I
5	28	0	Yes	40 days pp	II	C/S	1.9	II
6	46	4	Yes	40 days pp	II	C/S	2.8	I
7	26	3	No	7 days pp	III	NVD	3.6	II
8	36	1	No	40 days pp	III	C/S	3.3	II
9	36	7	No	1 day pp	II	NVD	3.2	I
10	30	1	No	15 days pp	III	NVD	4.3	I

yrs = years; pp = postpartum; NVD = normal vaginal delivery; C/S = cesarean section.

Table 2. — *Echocardiographic characteristics.*

No.	Follow-up period	Left ventricular end-diastolic dimension (mm)		Ejection fraction (%)	
		Initial	Follow-up	Initial	Follow-up
Severe dysfunction					
1	2 yrs	5.7	4.9	25	60
3	3 yrs	4.8	4.4	20	50
4	10 days	5.4	4.1	20	65
5	1 yr	4.9	5.3	20	35
6	8 months	5.7	5.4	20	55
10	21 days	5.6	4.8	20	60
	Mean	5.4	4.8	21	54
Moderate dysfunction					
2	20 days	5.1	4.3	30	60
7	5 yrs	5.6	5.8	35	30
8	2 yrs	6.0	6.5	30	25
9	2 1/2 months	5.9	5.0	40	65
	Mean	5.7	5.4	34	45

N.B.: Italics denote patients who had residual LV dysfunction on follow-up.

patients were in class II. These three patients were the only patients left with LV dysfunction at follow-up by echocardiography; two of them had moderate and one had severe LV dysfunction on presentation.

Discussion

PPCM is a relatively uncommon complication of pregnancy. Diagnosis of the disease should only be made after excluding other causes for cardiac failure [2]. To this end, demonstration of systolic LV dysfunction by echocardiographic criteria has become an important criterion for the definition of the disease [1, 2]. All our patients had evidence of systolic dysfunction by echocardiography, making this population a carefully chosen one with this diagnosis.

Risk factors for PPCM traditionally included advanced maternal age, multiparity and multifetal pregnancy [3]. All our patients were either multiparous or had a multifetal gestation. This is in agreement with the literature, confirming the prevalence of this condition in women with these risk factors.

Treatment of PPCM has traditionally consisted of inotropic agents, afterload reducers and diuretics. Recent reports of intravenous immunoglobulin therapy have provided promising results [4]. None of our patients received this modality of treatment.

PPCM has been reported to carry a poor prognosis [5], with a mortality rate of about 30%, and a higher incidence of persistent left ventricular dysfunction [6]. However, our patient population exhibited a relatively good outcome, with no maternal mortality and a 70% rate of normalization of LV function. None of the patients was left with severe LV dysfunction. This relatively good prognosis as opposed to findings in other series might be due to the absence of associated chronic illness in our patient population.

Limitations of the current study include the retrospective analysis of the data as well as the relatively small number of patients included. However, this was due to the low incidence of the disease in our region as well as to the need for documentation of LV dysfunction by echocardiographic criteria for inclusion in the study.

Conclusion

In conclusion, in our small cohort of previously healthy patients who developed PPCM, this condition appeared to carry a better prognosis than previous reports. This suggests the possibility of interplay between the disease and the general medical condition of the affected patients in determining the acute and long-term outcomes.

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