



# PERIPARTUM CARDIOMYOPATHY (PPCM) in HAITI

# Recovery of Heart Function in Women with Severe Heart Failure from Peripartum Cardiomyopathy: an 8-year longitudinal study from Haiti

JAMES D. FETT, MD, MPH

Herrio Sannon, MD

Emmeline Thélisma

Therese Sprunger, RN

Venkita Suresh, MD

Department of Adult Medicine, Hôpital Albert Schweitzer,  
Deschapelles, Haiti

(No conflicts of interest or disclosures to declare)

## Background/Introduction

- Peripartum cardiomyopathy (PPCM) is a form of dilated cardiomyopathy with great potential to recover full systolic function.
- Traditional concepts emphasize the importance of regaining systolic heart function in the first 6 months following diagnosis; and that if it does not happen early, it is unlikely to ever occur.
- The AIM of this presentation is to demonstrate that improvement and recovery in systolic heart function in PPCM patients can continue long after the first 6 to 12 months post-diagnosis.

## Background: Earlier Observations

- “PPCM patients who maintain cardiomegaly for 6 months or longer have an extremely poor prognosis.” Demakis & Rahimtoola. Peripartum Cardiomyopathy. Circulation 1971;44:964-8]
- “PPCM ....is associated with a prognosis characterized by either dramatic resolution of signs and symptoms over a short period of time or continued deterioration resulting in death.” [O’Connell et al. Peripartum Cardiomyopathy. J Am Coll Cardiol 1986;8:52-6]
- “If the congestive cardiomyopathy persists after 6 months, it is likely irreversible and associated with a worse survival.” [Brown & Bertolet. PPCM: a comprehensive review. Obstet Gynecol 1998;178:409-14]
- “The prognosis for women with PPCM appears to depend on the normalization of left ventricular size and function within 6 months after delivery.” [Pearson et al. PPCM Workshop, JAMA 2000;283:1183-8]

## Background: ESTIMATED INCIDENCE PPCM

- HAS, Haiti: 1 case per 300 to 400 live births, average 20 to 25 cases/year over 8 years.
- USA: 1 case per 3000 to 4000 live births

1-Brown CS, Bertolet BD. Peripartum cardiomyopathy: a comprehensive review. Am J Obstet Gynecol 1988;409-14; 2-Pearson GD, et al. Peripartum cardiomyopathy: National Heart, Lung, and Blood Institute and Office of Rare Diseases (National Institutes of Health) Workshop Recommendations and Review. JAMA 2000;283:1183-1188)

- South Africa: 1 case per 1000 live births  
Desai et al. Trop Doct 1995;25:118-23)

## **Background: DEMOGRAPHICS, HÔPITAL ALBERT SCHWEITZER DISTRICT of HAITI:**

- Central Haiti, Artibonite River Valley, 750 square kilometers
- Population: 258,000
- Women of reproductive age: 38,500
- Annual live births: 5950
- Occupation: farmers and small commerce
- Education: PPCM mothers 2 years (range 0-9)  
literacy rate 40 % (indicator of resources)



## Methodology: Diagnostic Criteria for PPCM:

- Onset heart failure (HF) during the last month of pregnancy to within 5 months postpartum
- Absence of preexisting heart disease
- Absence of other identifiable cause for HF (PPCM is a diagnosis of exclusion)

[Pearson et al. NIH Workshop on PPCM. JAMA 2000;283:1183-8.]  
[Demakis, Rahimtoola. Circulation 1971;44:964-8.]

- Additional criteria: Echocardiographic evidence of left ventricular systolic dysfunction (EF <45%, &/or FS <30 %, LVEDD [LVIDd] >2.7 cm/M<sup>2</sup>)

[Hibbard, et al, Obstet Gynecol 1999;94:311-16]

- Documented sero-negative for Human Immunodeficiency Virus to avoid confusion with HIV-related DCM.

## Methodology (continued):

- All patients prospectively-identified
- PPCM Registry, 2000-2008
- Meet all diagnostic criteria.
- Definition of recovery: Left ventricular ejection fraction (LVEF) >50 % with or without continuing treatment.

## Methodology (continued)

- Standard treatment: Diuretic (lasix) and ACE-inhibitor (captopril, because of economic factors)
- Economic factors excluded the routine use of beta-blockade until carvedilol added in 2007.
- Echocardiogram initially and every 6 months.
- Approved by HAS Ethics Committee, with written informed consent by all participants.

## **Results: HAS PPCM REGISTRY Patient Characteristics, (98 Patients, Prospectively-identified\*\*):**

- **MEAN AGE: 31.4 YEARS (range 15 – 49)**
- **MEAN PARITY: 4.1 (range 1 – 10)**
- **PRIMIPARAS: 24/98 (24.5 %)**
- **MEAN DAYS POSTPARTUM AT DIAGNOSIS: 62 (range 1 – 150)**
- **No diagnoses antepartum**

[\*\* Mayo Clin Proc 2005;12:265-73]

# Results for Recovery Study

- 32 out of 116 patients (27.6 %) fully recovered systolic heart function.\*\*
- Mean follow-up = 35 months (Range 2 years to 8 years).
- Shortest time to recovery = 3 months.
- Longest time to recovery = 48 months

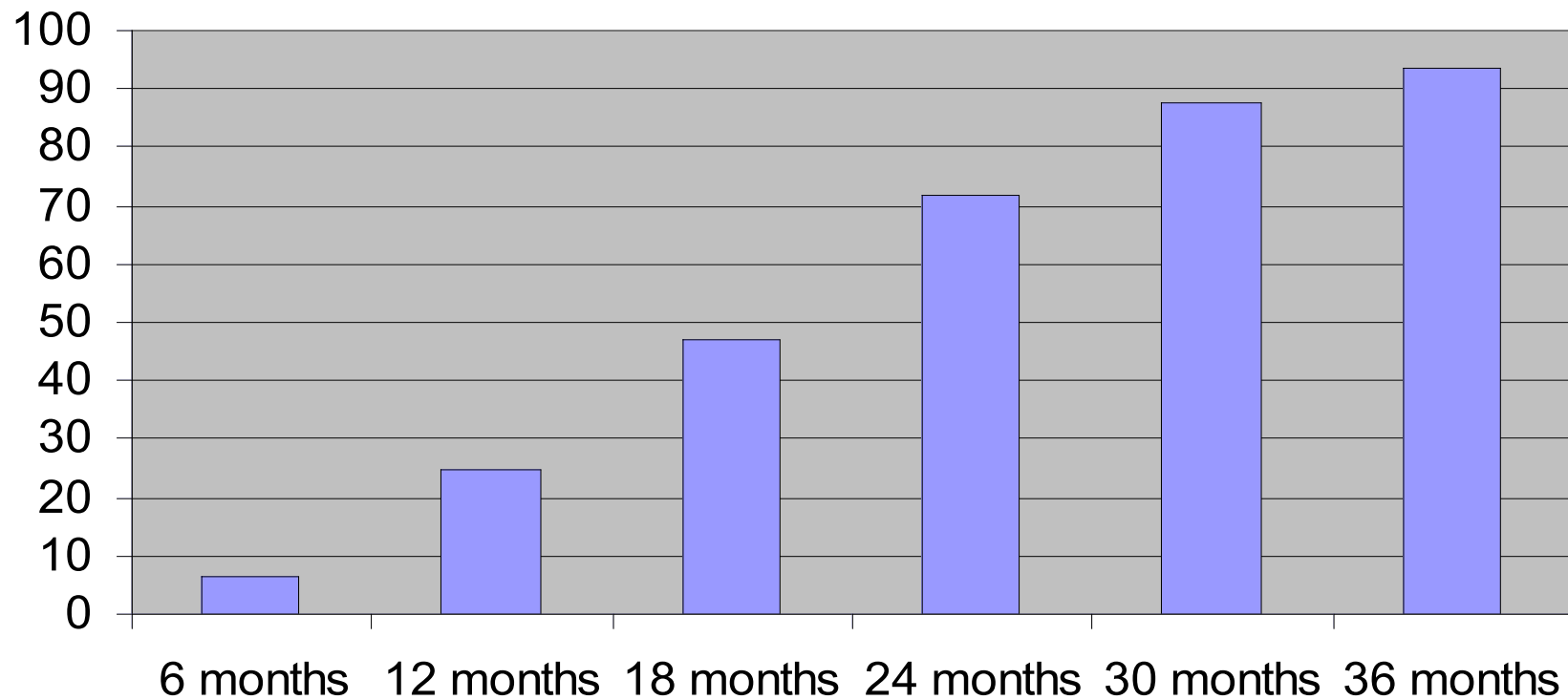
[\*\*Int J Gynaecol Obstet 2009;104:125-7]

# Results: Characteristics for recovered and non-recovered PPCM patients, 2000-2008

Characteristic	Recovered (n = 32)	Non-recovered (n = 84)	P-value
Mean age at diagnosis	33.8 years (R 17 – 47)	31.6 years (R 16 – 50)	NS
Mean parity at diagnosis	4.7 (R 1 – 9)	4.3 (R 1 – 11)	NS
Mean LV EF at diagnosis	27.8 % (R 15 – 40)	22.7 % (R 15 – 35)	0.002 *
Stage III/IV NYHA FC at diagnosis	30/32 (94 %)	77/84 (92 %)	NS

# Results: Recovery by time

**Percentage of 32 PPCM patients reaching full systolic function recovery by time interval, Haiti, 2000 - 2008**



## Discussion: Current Outcomes in Treatment

- Using 1)Diuretics, 2)ACE-Inhibitors and 3)Beta-blockade as early as tolerated by hemodynamic stability: Survival in > 98 %; improvement in almost all; full recovery of left ventricular systolic function in > 50 %; heart transplant in < 5 %.

[Amos AM, Jaber WA, Russell SD. Improved outcomes in peripartum cardiomyopathy with contemporary treatments. American Heart Journal 2006; 152:509-13.]

[Palmer BA, Janosko KM, McTiermaan C, Sherman F, McNamara DM. Left ventricular recovery in peripartum cardiomyopathy: impact of beta- blockade. Circulation 2007; 116 (Supple II:551).]

## Discussion: Outcomes, Haiti vs USA

- Full recovery of systolic heart function:

Haiti: 30 %                      USA: 50 %

- . Possible reasons for difference:

1-Diagnosis tends to be later in Haiti; this may account for higher mortality and lower recovery rates.

2-Until very recently, treatment in Haiti did not include beta-blockade. Lower cost generic carvedilol now available for routine use.

3-There may be genetic differences in women of African descent that impact survival and recovery outcomes.

## Discussion: Evidence for Delayed Recovery in USA PPCM Patients

- USA PPCM patients registered in [www.amothersheart.org](http://www.amothersheart.org):

16 recovered USA PPCM patients,  
2000-2008:

Range of time between diagnosis and reaching LV  
EF > 50 %: 0.25 to 44 months

Six out of 16 (37.5 %) required > 12 months:  
(13, 18, 21, 30, 40, 44 months)

## Discussion: Evidence for Delayed Recovery in USA PPCM Patients

26 PPCM patients, 2003-2008, Augusta, GA, USA

24/26 (92.3 %) African-American

9/26 reached recovery levels to-date:

3/9 recovery levels by 6 months post-diagnosis

5/9 recovery levels after 1 year post-diagnosis

(13, 15, 17, 21, 29 months)

[Personal Communications, Mindy Gentry, MD, Section of Cardiology,  
Medical College of Georgia, Augusta, GA ]

# Discussion: Evidence for Delayed Recovery in USA PPCM Patients

- “Poor outcome of Indigent Patients with Peripartum Cardiomyopathy in the United States.”\* [Louisiana State University Health Science Center, Shreveport, LA, USA]
- 39/44 patients (88.6 %) African American
- 7/44 died (15.9 %); 14/44 recovered (31.8 %)
- Median time for recovery 54 months
- **CONCLUSION:** “LV function recovery and survival rates of PPCM patients observed in our study are similar to those reported from Haiti and South Africa and different from what is generally accepted in the United States.”

\*Modi KA, Illum S, Jariatul K, Caldito G, Reddy PC. Am J Obstet Gynecol 2009;201:171.e1-5.

## Conclusion

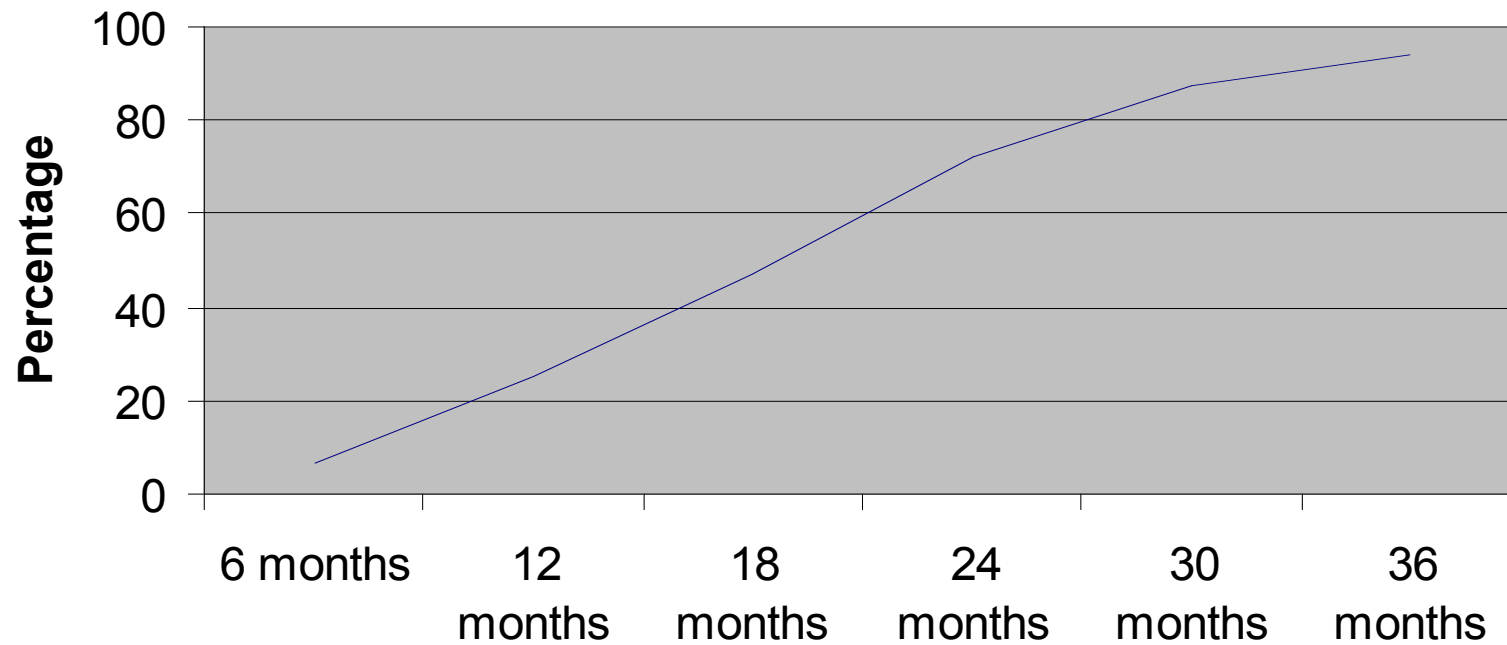
- Full recovery of left ventricular systolic function in PPCM patients often occurs after the first 6 to 12 months following diagnosis.
- It is important to continue treatment and follow-up sufficiently long to assure and document maximum benefit.



END

# Results

**Length of time required for full recovery of left ventricular function (EF > 50 %) in 32 Haitian PPCM patients, 2000 - 2008**



# Results

- **Table: Length of time required for recovery of left ventricular function in 32 Haitian PPCM patients, 2000 – 2008:**

	6 mos.	12 mos.	18 mos.	24 mos.	30 mos.	36 mos.	48 mos.
#	2	6	7	8	5	2	2
Total (%)	2 (6.3)	8 (25)	15 (46.9)	23 (71.9)	28 (87.5)	30 (93.8)	32 (100)

# Background: ECHOCARDIOGRAPHIC FOLLOWUP, PPCM PATIENTS, HAS, HAITI:

Echocardiographic followup, 82 PPCM patients, Hôpital Albert Schweitzer, Haiti, 2000-2004

