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#### **Research Article**

# Management and Evolution of Peripartum Cardiomyopathy in Burkina Faso

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Abstract

Summary: The objectives of this study were to describe the socio-demographic characteristics and evolution of PPCM cases managed at the Yalgado Ouédraogo University Hospital (YO-UH).

Materials and Methods: We conducted from July 2020 to January 2021, a descriptive and analytical cross-sectional study with retrospective collection, which included PPCM managed from January 1, 2010 to July 31, 2020 in the cardiology department of YO-UH.

**Results:** PPCM hospital prevalence was 3.2%. The average number of pregnancies was  $3.23 \pm 2.06$  with and multiple gestations were the most represented with 40.55% of cases. The period of onset of symptoms was in the postpartum period in 89.86% of cases. On admission, all patients were in congestive heart failure. At echocardiography, the mean left ventricular end-diastolic diameter (LVEDD), was  $59.72 \pm 6.98$  mm with a mean left ventricular ejection fraction (LVEF),  $32.43 \pm 8.53\%$ . The treatment was that for heart failure. Bromocriptine was prescribed in 71.29% of cases. Death was recorded in 7.43% of cases. At six months follow-up, 26 patients were lost to follow-up, seven of them were re-hospitalized and six were dead. At 12 months, 44 were lost to follow-up, 17 were re-hospitalized and six were dead. Symptoms of heart failure were present in 37 patients. After 12 months of follow-up, the left ventricle remained dilated in 33.33% of patients and 10 women had exertional dyspnea.

Conclusion: PPCM is frequent in Burkina Faso. Symptom's onset period is postpartum and are congestive heart failure. Mortality is high as well as patients lost to follow-up.

# **INTRODUCTION**

Peripartum cardiomyopathy (PPCM) is one of the most important pregnancy-related heart diseases [1]. As cosmopolitan condition, PPCM affects variably different regions of the world, with more marked tendency in developing countries [2].

The National Hospital Discharge Survey estimates its incidence at 1/4000 births with a predominance of African-American women in the United States and 1/300 cases in Haiti [3].

In Africa, the incidence of PPCM varies greatly from one country to another. Indeed, it is of the order of 1/2687 births in Côte d'Ivoire, 1/1000 in South Africa, 1/100 cases in Nigeria and 1/3800 births in Burkina Faso [2].

In Burkina Faso, Zabsonré et al., noted in 2000 that CMPP was the main cause of peripartum heart failure (60%) [1].

In the current situation of PPCM, bromocriptine has shown its interest in reducing the morbidity and mortality related to the disease. Its accessibility remains limited in our developing countries due to the low purchasing power of the populations [4-6].

The objectives of this study were to describe the sociodemographic characteristics and evolution of PPCM cases managed at the Yalgado Ouédraogo University Hospital (YO-UH).

## **MATERIALS AND METHODS**

We conducted from July 2020 to January 2021, a descriptive and analytical cross-sectional study with retrospective collection, which included PPCM managed from January 1, 2010 to July 31, 2020 in the cardiology department of YO-UH.

Patients were identified from the hospitalization registries of the cardiology department of the YO-UH. A first part of the data was collected from the hospitalization records. We appreciated clinical condition, echocardiographic, electrocardiographic and X-Ray data during hospitalization. Patients were then contacted from telephone for additional data after oral informed consent. We noted from their personal health booklet, data at six and

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twelve months of following. They were seen in consultation for a clinical examination, an electrocardiogram, Chest X-ray and a cardiac echography.

# RESULTS

# **Sociodemographic Characteristics**

During the study period, 6619 patients were hospitalized in cardiology department. PPCM accounted for 216 cases, representing a hospital prevalence of 3.2%.

The mean age of the patients was  $29.33 \pm 6.83$  years with extremes of 16 and 47 years. Their occupation was mainly household (72.97%). The socio-economic level was low in 81.08% of cases. In 62.16% of cases, they lived in urban and semi-urban areas.

# Number of pregnancies and deliveries

The average number of pregnancies was  $3.23 \pm 2.06$  with extremes of 1 and 11 procedures. Multiple gestations were the most represented with 40.55% of cases. The average number of deliveries was  $3.21 \pm 2.03$  with extremes of 1 and 11. Multiparous women were predominant, representing 54.07% of cases.

# Symptomatology at admission and management

The period of onset of symptoms was in the postpartum period in 194 patients, i.e. 89.86%.

The average delay from symptoms onset to management was 40.61 days  $\pm$  15.45 days with extremes of 2 and 110 days.

On admission, all patients were in congestive heart failure. On chest radiography, the mean cardiothoracic index was  $0.60 \pm 0.04$  with extremes of 0.54 and 0.80. Cardiomegaly was observed in 133 patients, or 52.31% of cases.

On electrocardiogram, supraventricular premature beats were present in 5.1% of cases, atrial fibrillation in 2.8% and right bundle branch block in 16.66%.

# In-hospital echocardiographic data

The mean left ventricular end-diastolic diameter (LVEDD) was  $59.72\pm6.98$  mm with extremes of 45 and 86 mm with a mean left ventricular ejection fraction (LVEF),  $32.43 \pm 8.53\%$  with extremes of 14.2 and 44%. The mean parasternal long-axis left atrial diameter was  $42.94 \pm 6.7$  mm with extremes of 22 and 57 mm.The mean systolic pulmonary artery pressure (SPAP) was  $49.08 \pm 18.21$  mmHg with extremes of 9 and 120 mmHg.

The mean tricuspid annular plane systolic excursion (TAPSE) was  $16.92 \pm 4.73$  mm and extremes of 10.5 and 28 mm. Pericardial effusion was present in 82 patients or 37.96%.

Spontaneous contrast was present in 30 patients (13.88%), and intra-cavity thrombus was present in 16 patients (7.40%).

# **Treatment at admission**

As a rule, the treatment was that for heart failure. Diuretics were administered in all patients (100%), converting enzyme inhibitors and ARB2 in 87.83%, dobutamine in 19.59%, digoxin in 6.69%, and bromocriptine 71.29%.

#### **Intra-hospital evolution**

On admission there were 19.5% cases of VTE, 8.7% of pulmonary edema, 7.43% of cardiogenic shock and 3.38% of cardiovascular collapse. A good clinical course was observed in 92.83% of cases. Death was recorded in 7.43% of cases and the average duration of hospitalization was  $10.91 \pm 6.81$  days.

## **Treatment at discharge**

The treatment consisted of angiotensin-converting enzyme inhibitors or Angiotensin AT2 receptor inhibitors (100%), diuretics (97.68%), beta-blockers (44.44%), antivitamins K (17.59%), and digoxin (12.96%). Contraception was instituted by the gynecologist.

# **Evolution after hospitalization**

At six months follow-up, 26 patients were lost to follow-up, seven of them were re-hospitalized and six were dead.

At 12 months, 44 were lost to follow-up, 17 were rehospitalized and six were dead. Symptoms of heart failure were present in 37 patients

After 12 months of follow-up, the left ventricle remained dilated in 33.33% of patients, 10 of whom had exertional dyspnea. Non-compliance with therapy is a major factor.

# DISCUSSION

# Socio-demographic characteristics

The epidemiological profile of PPCM is very variable, particularly with regard to its prevalence. In our study the frequency was 3.2% while it was 2.7% in Congo [7]; 2.8% in Chad [8], and 3.4% according to another author in Burkina Faso [9].

The average age of onset in our patients was 29 years, but it is known that CMPP can occur in any woman of childbearing age if the conditions are met [4,10,11].

The precarious economic situation of these women has been suggested as an etiological factor. Our patients were indeed housewives in about two thirds of the cases, with a low socioeconomic level as in most studies in Africa [10,12,13].

# **Route of delivery**

According to several authors, most women give birth by vaginal delivery [14], in Africa. On the other hand, the indication for cesarean section has been wide in American series, ranging from 27.3 to 42.9% of cases [14,15].

In African series the obstetrical history is usually rich. In our study the average number of pares was 3.23. This observation is shared by other authors [10,14,16].

# **Clinical presentation**

In most cases, the usual clinical presentation is a heart failure syndrome, most often global [18], occurring in the post partum period when there is a delay in consultation. In our study, the onset was postpartum in 90% of cases. Adjagba et al [17] in Benin made the same observation.

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# **Evolutionary profile of the patients**

Before the era of ventricular assistance, the prognosis of PPCM was reserved in one third of cases. With the improvement of knowledge in the field, mortality is almost zero in developed countries. However, in Africa, this mortality is still high [19]. In hospital settings, African series show a mortality of between 6 and 15%. Nevertheless, many patients are usually lost to follow-up. In our study 14.81% of patients were lost to follow-up. Thromboembolic complications are the responsibility of the PPCM [21-23]. In our work, one contrast (13.88%), and 12 cases of intra cavitary thrombus (7.40%), and 19.5% of venous thromboembolic disease were observed. Treatment in some cases included bromocriptine as recommended [17,24]. After 12 months of follow-up, the left ventricle remained dilated in 33.33% of patients, 10 of whom had exertional dyspnea. Noncompliance with therapy is a major factor.

# **CONCLUSION**

The prevalence of CMPP in cardiology remains high (3.2%). The patients are received in a left heart failure picture sometimes complicated. Hospital mortality is still high because of the limited therapeutic means, especially ventricular assistance. Many women are still lost to follow-up. They return most often with cardiac decompensation. Non-compliance with the classical treatment of heart failure and nutritional deficiency could account not only for the high prevalence of CMPP, but also for the persistence of a high rate of ventricular dilatation after one month of follow-up. Therefore, a preventive public health policy could be implemented to combine education with dietary supplements for pregnant women in income areas.

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