CASE REPORT

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Peripartum Cardiomyopathy in Emergency Department: A Case Report

Acil Serviste Peripartum Kardiyomiyopati: Bir Olgu Sunumu

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ABSTRACT

Peripartum cardiomyopathy (PPCM) is a form of dilated cardiomyopathy, which is one of the potential life-threatening complications of pregnancy. Peripartum cardiomyopathy is observed between the last 4 weeks of the pregnancy and the postpartum 5th month. It is related to high rate of maternal and infant mortality. Although the underlying factor has not been clearly understood yet, many factors such as infections, myocarditis, immunological factors or oxidative stress caused by prolactin have been attributed. We aimed to discuss the emergency management of postpartum PPCM in our case report.

ÖZET

Peripartum kardiyomiyopati (PPKM), gebeliğin potansiyel olarak hayati tehlike arz eden komplikasyonlarından olarak bir dilate kardiyomiyopati formudur. PPKM, gebeliğin son 4 haftası ve postpartum 5. aylar arasında görülmektedir. PPKM yüksek anne ve bebek mortalitesi ile ilişkilidir. Altta yatan kesin neden belli olmamakla birlikte enfeksiyonlar, myokardit, immünolojik faktörler, prolaktinin neden olduğu oksidatif stres gibi birçok neden suçlanmaktadır. Olgu sunumumuzda postpartum gelişen PPKM olgusunun acil yönetimini tartışmayı amaçladık.

Keywords:
Dyspnea
Pregnancy
Cardiomyopathy

Anahtar Kelimeler:
Dispne
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INTRODUCTION

Pregnancy leads to several anatomical and physiological changes. These changes affect the pulmonary and cardiovascular systems to an important extent (1). Dyspnea is a frequent complaint in the peripartum period, and venous thromboembolism, amniotic fluid embolism, pulmonary edema secondary to preeclampsia, aspiration pneumonia, tocolytic pulmonary edema, peripartum cardiomyopathy, pneumomediastinum, air embolism, asthma, pneumonia and cardiac pathologies should be considered in the differential diagnosis (1). Pregnancy may lead to an exacerbation in the predisposing disease, particularly in those with a cardiopulmonary disease prior to pregnancy, whereas several situations develop during pregnancy only or specific to pregnancy (1). In our case report, we aimed to discuss emergency management in a case with postpartum dyspnea.

CASE

A 29-year old female patient presented to our emergency department (ED) with complaints of respiratory distress, swelling in the legs and feet, and chest pain within the last 10 days. The patient gave a spontaneous vaginal birth 4 days prior to her admission to the ED. Her history included 3 years of marriage, gravida 2, and parity 2.

She had a moderately pale appearance on her physical examination. She had the complaint of dyspnea and orthopnea. Her blood pressure was 135/75 mmHg, heart rate 76 beats/min., oxygen saturation 94% and the respiratory rate 22 breaths/min. Respiratory sounds were reduced and rales were auscultated in the lower zones of both lung. The patient had bilateral 3+ pretibial edema with pitting.

ECG demonstrated normal sinus rhythm. There was an increment in cardiothoracic ratio and increased density at the inferior zones of both lungs in chest X-ray.

Laboratory findings included hemoglobin 10.7 g/dL (normal range (NR): 12-16 g/dL), D-dimer: 2946.2 ng/ml (NR: <500) and arterial blood gases with pH: 7.40, PCO2: 38.3mmHg, pO2: 85 mmHg, HCO3: 22 mmol/L.

The pre-diagnoses of pulmonary embolism and peripartum cardiomyopathy were considered for the differential diagnosis of dyspnea. Treatment with 2 L/min nasal oxygen, anticoagulation and diuretic was begun. No deep vein thrombosis was reported on the lower extremity venous doppler ultrasonography. Echocardiography revealed mild a hypokinetic left ventricle, an ejection fraction of %40 (NR:%55-70), pulmonary arterial pressure 25 mmHg (NR:<25mmHg) and normal right atrial and ventricular evaluation. In the light of these findings, the patient was hospitalized in the coronary care unit with the diagnosis of 'Peripartum Cardiomyopathy'.

DISCUSSION

The European Heart Society has been defined 'Peripartum Cardiomyopathy (PPCM)' as a form of dilated cardiomyopathy, which is one of the potential life-threatening complications of pregnancy. It is rare and leads to congestive heart failure in the last months of pregnancy or within the first 5 months following labor (2).

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Although the underlying factor has not yet been clearly understood, many factors such as infections, myocarditis, immunological factors or oxidative stress caused by prolactin has been blamed as the cause. The data confirm previous reports of high incidences of pre-eclampsia in patients with PPCM and further support the suggestion that this condition, which is often used as an exclusion criterion, is strongly associated with predisposition to PPCM, most likely as a result of shared pathophysiological mechanisms (3). It is related to a high rate of maternal and infant mortality (25-50%). Although the actual incidence of the disease is unknown, 1000 - 1300 women per year are affected within the United States of America. It has been observed that 25-75% of the patients are young and having their first babies (4). About 20% of the patients recorded in the PPCM registry to date have documented cardiomyopathy related to a previous pregnancy (3).

Despite marked differences in the sociodemographic parameters and ethnic backgrounds of patients from around the world, the baseline characteristics of subjects with PPCM are surprisingly similar (5). The most frequent complaints of the patients with PPCM are respiratory distress (90%), fatigue, tachycardia and edema (6). Demakis et al. have described the clinical diagnostic criteria in 1971 as follows: 1. Heart failure observed in the last month of pregnancy or within the first 5 months after labor; 2. The absence of another reason explaining heart failure; 3. The absence of a cardiac disease diagnosed prior to the latest month of pregnancy (7). Later, the presence of left ventricular dysfunction manifesting with reduced ejection fraction on echocardiography (left ventricular ejection fraction < 45% and left ventricular end-diastolic width > 2,7 cm/m²) was added to these criteria (2).

Treatment of PPCM can be carried out in the same way with conventional heart failure treatment including oxygen support, salt restriction, diuretics, digitalis and vasodilator agents. Angiotensin Converting Enzyme Inhibitors are contraindicated in the antenatal period. Data on beta-blocker drugs are limited. Other treatment recommendations include: calcium channel blockers, statins, monoclonal antibodies, interferon beta, immune-adsorption, therapeutic-apheresis and cardiomyoplasty (2,4). The use of bromocriptine and cessation of breastfeeding has been controversial. This is especially important because there is a potential risk associated with using bromocriptine in the peripartum period (8), and potential harm to mothers and newborn infants associated with the suppression of lactation, especially in the developing world (4). Breastfeeding, however, was not found to have a detrimental effect on recovery of left ventricular (LV) function in the IPAC study (9). Prolactin suppression and new high-dose immunoglobulin agents are under research for the treatment (4). Recent elegant research in animals has implicated an important role of unbalanced oxidative stress during pregnancy that causes proteolytic cleavage of the hormone prolactin (PRL) into a vasotoxic, proapoptotic and proinflammatory 16-kDa PRL fragment that leads to endothelial and myocardial dysfunction (2,4). The use of bromocriptine for inhibition of PRL in the same models was shown to prevent the formation of cardiomyopathy. A benefit of bromocriptine in women with PPCM has also been reported in a randomized study conducted in South Africa. PPCM may lead to congestive heart failure, atrioventricular arrhythmia, thromboembolism and sudden death (2). Data on the prevalence of ventricular arrhythmias and risk for sudden death in PPCM is limited. In a retrospective review carried out, 38% of reported mortality was ascribed to sudden death (5). This information further supports the use of wearable cardioverter-defibrillators in women with PPCM as a bridge to recovery or implantable cardioverter-defibrillators in women with persistent LV dysfunction (8). Women with PPCM who are young and otherwise healthy are usually not interested in continuing to take medications after recovery. Because of the lack of long-term data, the effects of discontinuing heart failure medications are unclear. Previous studies have reported a high incidence of LV thrombus in women with PPCM that is probably related to the hypercoagulable state of pregnancy and the postpartum period. For this reason, anticoagulation treatment has been recommended for women with PPCM (8).

CONCLUSION

Although PPCM is a rare disease among pregnant women, it progresses with high maternal and infant mortality. Diagnosis necessitates exclusion of other possible diagnoses in patients with dyspnea within the last month of pregnancy and the first 5 months after labor. Careful and thorough examination increases the possibility of a rapid and accurate diagnosis for the patient with dyspnea during pregnancy, which can improve the prognosis.

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