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Acute Rheumatic Fever With Carditis In Pregnancy: A Case Report

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ABSTRACT

Rheumatic fever (RF) is the consequence of a previous group A haemolytic streptococcal infection, which may be cured or evolve in a serious deformation of the cardiac valves. It is most common among children aged 5-15 years and very rare after age 35 years [1] . In developing countries, rheumatic heart disease (RHD) remains a significant cause of cardiovascular morbidity and mortality [2] . It affects More than 15.6 million people globally and 233,000 die of the disease each year around the world. [3] .

Current data about the incidence of RHD during pregnancy in KSA is lacking , but The general incidence and consequent endocarditis is reported as low (0.006%) [4,5] . even though the low incidence of the disease during pregnancy is of challenging diagnosis and management.

Pregnancy causes a significant hemodynamic changes : 25% increase in cardiac output, 40% increase in plasma volume, increased oxygen requirements, retention of salt and water, weight gain, and alterations in hemodynamic during delivery. Which all can be tolerated by normal heart , but these changes have a different impact for women with RHD [6].

Keywords: *RF – Rheumatic fever, RHD – Rheumatic heart disease, BP- Blood pressure, MCP- Metacarpophalangeal, NYHA-New York Heart Association class, PPHN-Persistent pulmonary hypertension of the newborn*

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1. INTRODUCTION

A thirty-six-year old Saudi woman in her eighth pregnancy with previous six deliveries and one abortion , at her 28th weeks of gestation , presented to internal medicine clinic with left hand joints pain, swelling , and morning stiffness for less than 10 minutes , which all started one day before clinic presentation . patient gave a history of similar attacks in the last two months but in different locations . it initially started on left knee , with pain , swelling , and decrease mobility , which lasted for four days then subsided with complete resolution before starting again in the right knee . this migratory fleeting pattern of pain and swelling involved in this two months both knees , left ankle , right shoulder , right elbow , right hand , and finally today with the left hand . patient also complained from recurrent attacks of sore throat and fever for the past 3 months .one month ago there was one attack of left sided chest pain radiate to the back which lasted for almost a week , followed by fatigability and progressive shortness of breath . examination of the patient showed ,beside pregnancy, a fully conscious and alert woman with mild bilateral lower limb edema . The following data were collected : heart rate of 80 beat/minute, regular ; Temperature of 37 C ; Respiratory rate of 18 breath/minute ; BP of 110/70 ; oxygen saturation of 99% in room air ; jugular venous pressure was not raised .throat showed enlarged tonsils with pus . hand examination showed active left hand arthritis in 2nd , 3rd, and 4th MCP joints . Examination of pericardium showed a minimally decreased first heart sound and a holosystolic murmur over the mitral area .

Investigations : Electrocardiograph showed first degree heart block ; the echodopplercardiographic evaluation was compatible with moderate mitral regurgitation , anterior mitral valve leaflet calcification , and decrease mobility of the posterior leaflet . LABORATORY finding : hypochromic anemia (hemoglobin = 11.2 g/dl), white blood cell count of (10,300/mm3) and accelerated erythrocyte sedimentation rate (111 mm/1st hour). High levels of antistreptolysin O (AEO) were observed(400 U/L).

PATIENT was admitted under a multidisciplinary team consist of internal medicine team , cardiology , and obstetrician to high observation room in complete bed rest and continuous cardiac monitor . she was treated with prednisolone 15 mg daily , ASPIRIN 81 mg daily , long acting Penicillin 1.2 million units per injection intramuscular every 2 weeks . patient showed a significant steady improvement regarding her complains over the course of hospital admission . Ten days later a follow up echocardiogram showed stable mitral valve changes with no further damage and patient was discharged home in stable condition with a close follow up .

Patient completed a successful pregnancy and gave birth vaginally at 40th week of gestation to a healthy 3.23 kg baby boy , with Apgar score 9. There were no perinatal complications . Mother and her baby were discharged in a good medical condition.

2. DISCUSSION

Management of RHD consists of primary prevention of acute rheumatic fever which requires antibiotic treatment of streptococcal throat infection , and a secondary prevention which entails prevention of recurrent episodes of acute rheumatic fever and is the most effective way of preventing further cardiac damage . the secondary prevention regimen usually consists of benzyl penicillin and anti-inflammatory agents (salicylates in patients moderate to severe carditis without heart failure and high-dose corticosteroid for severe carditis and heart failure) [7] . our previously presented patient was Given benzyl penicillin as antibiotic of choice which is category B , but given the fact she is pregnant in her third trimester aspirin was contraindicated in high doses . after discussion with the patient , cardiologist , and obstetrician we chose not to give NSAID , instead patient was started on glucocorticoid . she was followed for treatment complications and exhibited high blood sugar which was controlled by diet .

RHD during pregnancy carries a high risk of adverse outcome for both mother and fetus including a higher mortality , high risk of caesarian section , preeclampsia , heart failure , arrhythmia , preterm birth and increase rate of still birth . it was found that patients who suffer from NYHA class III and IV have strong prediction of an adverse outcome . [8,9]

women need close fellow up under the care of a multidisciplinary team **. if secondary prophylaxis** was given (usually Benzyl penicillin injections every 21-28 days is safe during pregnancy). It is vital not to miss any injections to avoid a recurrence of rheumatic fever and worsening of the rheumatic heart disease. [10]

NSAID is one option of anti-inflammatory agents used in the acute phase of the disease . But, The period of gestation, duration , and dosage in which NSAIDs are given is a major factor in influencing embryo-fetal effects. For example, miscarriage and congenital anomalies (particularly cleft palate, congenital heart defects and abdominal wall defects) have been described after treatment during early gestation, even though the risk of these adverse pregnancy outcomes appears to be small; on the other hand, renal and vascular effects (prenatal closure of the ductus arteriosus and PPHN) have been observed in fetuses of mothers treated with NSAIDs during the third trimester of gestation [11] , Hence , steroid carry a better choice to be used as an anti-inflammatory agent in RHD during pregnancy with the close fellow up and management of the possible unwanted side effects .

The greatest risk for an adverse cardiac event occurring was during labor and in the immediate post-partum period. So, delivery was best carried out at a tertiary center with intensive care facilities.[12]

The time and mode of pregnancy termination should be a shared decision of both the cardiologist and the obstetrician according to the functional grade of the patient , and the presence of any obstetric or cardiac indications.

Vaginal delivery is the recommended mode of pregnancy termination unless the presence of contraindication . Epidural analgesia was recommended for all patients undergoing vaginal delivery, as it prevented tachycardia without significant hemodynamic changes. This avoided the sudden increase in blood flow across the mitral valve and prevented sudden rise in left atrial pressure.[13]

cesarean section the absence of obstetric indication was only recommended for patients with cardiac dysfunction, patient at risk of hemodynamic instability, pulmonary hypertension, uncontrolled arrhythmia, mechanical valve prosthesis, and patients with cyanosis [14] . C-section under spinal anesthesia for cardiac patients carried a success rate of 99 % . [15]

Regarding the use Antibiotic prophylaxis against infective endocarditis the recent American Heart Association/American College of Cardiology practice guidelines doesn't recommend antibiotic prophylaxis for uncomplicated vaginal or cesarean section on basis of studies indicate low risk of bacteremia associated with these procedures [16]

3. CONCLUSION

With the advance in health care system , early detection of acute rheumatic fever and carditis during pregnancy with the initiation of multidisciplinary management as soon as possible help to decrease adverse events to a more favorable outcome for both mother and fetus .

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Conflict of interest:

The authors report no declarations of interest.

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