Primary Pulmonary Hypertension During Pregnancy- A Case Study

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Abstract: Pregnant women with pulmonary hypertension are at a high risk of morbidity and mortality. Heart failure results from the inability to increase cardiac output, and additional risks are introduced by hypercoagulability and a decrease in systemic vascular resistance. Although advanced therapies have been reported to be promising, they do not completely eliminate the risks and complications. Herein, I report a case of 26 years of a primigravida who presented in casualty with dyspnea, chest pain, and swelling (++) over bilateral lower limbs. The patient was diagnosed with primary pulmonary hypertension during her third trimester of pregnancy. The goal of this study is to better understand the causes of primary pulmonary hypertension, as well as the risks and complications that come with it, as well as the critical care management of such patients.

Keywords- Primary Pulmonary Hypertension, Pregnancy, Maternal mortality.

INTRODUCTION-

Pulmonary hypertension (PH) is defined as an increase in mean pulmonary arterial pressure (PAPm) at rest of 25 mmHg (Normal PAPm at rest 14 3 mmHg) as measured by right-heart catheterization (RHC). It can be found in a variety of clinical conditions. It is a rare condition that can affect women of childbearing age. Pregnancy's normal physiological changes are poorly tolerated by women with pulmonary hypertension, resulting in high morbidity and mortality. As a result, pulmonary hypertension is considered a contraindication to pregnancy. The main symptoms are shortness of breath (dyspnoea), fatigue, dizziness/fainting spells, chest pressure or pain, and swelling (edema) in the ankles, legs, and abdomen. Because its symptoms are similar to those of other heart and lung diseases, it is diagnosed by ruling out other conditions [1]. If a woman with pulmonary hypertension becomes pregnant or is diagnosed with this condition for the first time during pregnancy and chooses not to terminate the pregnancy, pregnancy, and delivery should be managed by multidisciplinary services with experience in managing both pulmonary hypertension and high-risk pregnancies.

CASE STUDY-

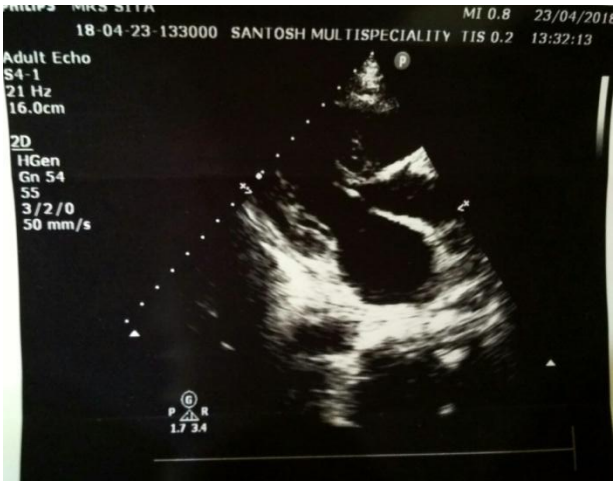
A 26-year-old primigravida presented at 33 weeks of gestation with a one-month history of progressive dyspnea, palpitation, and mild intermittent cough. The patient had a 4-year history of hypertension and diabetes mellitus and was on insulin.She was tachypneic and tachycardic on examination. The blood pressure was 180/119 mmHg, the PR was 100/min, and the RR was 28/min. She had right ventricular overload symptoms such as elevated jugular venous pressure (14 cm above the sternum), lower limb edema, and right parasternal heave. The swelling was present in both lower limbs. She had an accentuated pulmonary component of the second heart sound and a pan systolic murmur of tricuspid regurgitation on auscultation.

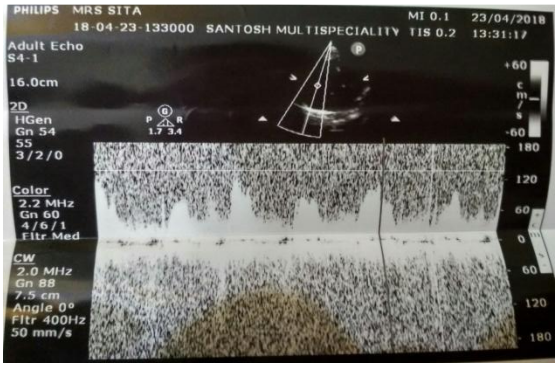
The electrocardiogram revealed a right heart strain pattern, and the chest radiograph revealed a prominent right heart silhouette with prominent pulmonary arteries.

An echocardiogram revealed mild to moderate TR, no RWMA, LVEF-55%, mild MR, no clot/veg/PE, high normal LA/RA, PSAP-65mmhg, and an IVC collapse of 1.4mm.

(Figures 1,2,3,4,5.6, and 7). She was diagnosed with severe PAH and referred to a higher center for intensive treatment.

(fig1,2)





DISCUSSION-

PPH is defined as a persistent elevation of PASP (mean greater than 25 mmHg at rest) in the absence of a clear cause. The underlying contributing mechanisms are thought to be pulmonary vasoconstriction, medial hypertrophy, thrombosis in situ, and dysfunctional pulmonary vascular endothelium.During pregnancy, pulmonary hypertension is poorly tolerated. Deterioration usually occurs in the second trimester, accompanied by symptoms such as fatigue, dyspnea, syncope, and chest pain. This is equivalent to a 40% increase in cardiac output and blood volume. Uterine contractions effectively add 500 ml of blood to circulation during labor. The pain of labor raises right atrial pressure, blood pressure, and cardiac output. Pregnancy is not advised for women with PPH. A termination is considered in the early stages of pregnancy.

When PPH is not discovered until late in pregnancy, an elective cesarean section is preferred. This facilitates collaboration between specialties, allows for early monitoring, reduces pain and hemodynamic consequences of labor, and allows for the placement of an intensive care bed. Because premature spontaneous labor is common, delivery is usually scheduled for 32-34 weeks gestation. A study was conducted at AIIMS in New Delhi to determine maternal and perinatal outcomes as well as to compare outcomes between severe and mild pulmonary arterial hypertension. 14 of the 30 patients had severe PAH, while the remaining 16 had mild PAH. When compared to women with mild PAH, women with severe PAH had a significantly higher incidence of preterm delivery (11 vs. 3, P 0.05), small for gestational age infants (10 vs. 2, P 0.05), and cardiac complications (6 vs. 1, P 0.05). Maternal mortality occurred in an Eisenmenger syndrome case. PABP increased from 63.14 7.6 to 71.57 7.9 mmHg (P 0.05) in women with severe PAH and from 40.37 3.6 to 41.69 4.1 mmHg (P 0.05) in women with mild PAH[2].

Women with pulmonary hypertension should avoid pregnancy. When a pregnancy occurs, even if the woman is in good clinical condition, termination should be offered. Pregnancy termination is a high-risk procedure that should only be performed in a skilled facility.

If the woman decides to continue her pregnancy, it is critical that she is managed by a multidisciplinary team in a pulmonary hypertension treatment center. A pulmonary hypertension specialist, a cardiologist, an obstetrician and an anesthetist experienced in managing high-risk pregnancies, and a neonatologist should be part of the team [3]. The woman must be monitored at least once a month.

Rest and a low-salt diet should be used to reduce cardiac demands. The patient should lie in the lateral position to avoid caval vein compression. Although the benefit of hospitalization in the second trimester is unproven, a satisfactory pregnancy outcome has been described when women were followed on an outpatient basis. Oxygen should be administered, when hypoxemia is present, When there is an established indication outside of pregnancy, anticoagulation therapy should be continued. However, it should be considered on an individual basis in other women because there is a risk of bleeding, such as in women with Eisenmenger syndrome or portal hypertension. A delivery plan should be developed, but the best mode of delivery is still up for debate.

CONCLUSION-

Pulmonary hypertension is associated with a high risk of maternal mortality and morbidity. All types of pulmonary hypertension increase the risk. Although women with severe pulmonary hypertension appear to be at higher risk, there is no safe cut-off value. Pregnancy is thus contraindicated, but if a woman chooses to continue her pregnancy, she must receive multidisciplinary care in highly specialized services.

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