A case presentation on rheumatic heart disease with mitral regurgitation

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Abstract

In pregnancy there is increased pressure on the heart valves. Counseling of women with rheumatic heart disease gives appropriate surveillance of maternal and fetal well being, as well as planning and documentation of the management of elective and emergency delivery. However, many women with rheumatic heart disease have healthy pregnancies, healthy babies with the right medical care.

Keywords: Prevention, anaemia, Adolescent girls.

Introduction

Rheumatic heart disease (RHD) is a disease of poverty. Rheumatic heart disease describes a group of short-term (acute) and long-term (chronic) heart disorders that occurs as a result of acute rheumatic fever. It is usually seen in children who are 5 to15 years old. RHD is a disease of the young and its impact is seen in women of reproductive age. It is an active or inactive disease of the heart and the most affected is generally the mitral valve which is characterized by reduced functional capacity of the heart caused by inflammatory changes in the myometrium or scarring of the valves. Risk factors of rheumatic heart disease include poverty, poor housing, overcrowding and under nutrition. The signs and symptoms are joint pain, fatigue, joint stiffness, tachycardia, dyspnea, weakness, a "butterfly'' rash across the cheeks, sun sensitivity and hair loss. For some of these women an initial diagnosis is made antenatal or postpartum, as they fail to tolerate the impact of the physiological changes of pregnancy on their damaged heart valves resulting in clinical decompensation. However early diagnosis, appropriate management prior to pregnancy, and good functional status at the time of entering pregnancy allowed for a good maternal and neonatal outcomes.

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Diagnosis

History of Rheumatic fever, especially if it is treated with long term secondary prophylaxis, doesn't always lead to RHD.

Physical examination used to assess the signs of rheumatic fever, including joint pain and inflammation. Stethoscope is used to listen the heart abnormal rhythms.

Blood test like complete blood count, culture and ESR to be done to find out any infection and can detect antibodies.

Chest X-ray to check the size of the heart

Electrocardiogram is used to find out the changes seen on heart.

Echocardiography is a non-invasive ultrasound that uses sound waves to create a moving image of the heart and to measure its size and shape. The echo test may be done one or more times during pregnancy, to monitor how well the heart is performing.

Management

Preventive aspects

- Primordial prevention is reducing the risk factors for rheumatic fever by covering the mouth while sneezing or coughing, proper hand washing and maintaining distance from sick people.
- **General management:**
  - More frequent antenatal visits
  - More rest

- ❖ Diet is directed to restrict weight gain and prevent anemia as it increases cardiac strain
- ❖ Infection should be avoided and properly treated
- ❖ Hospitalization is needed if tachycardia (exceeding 100 beats/ minute) occurs.

Medical management

- ❖ Digoxin is indicated in atrial fibrillation to slow the ventricular response and in acute heart failure to increase myocardial contractility
- ❖ Diuretics are used in acute and chronic heart failure
- ❖ Beta-adrenergic blockers as propranolol may be indicated for arrhythmia
- ❖ Anticoagulants including warfarin or low molecular weight heparin should be taken to promote circulation and to prevent clotting.
- ❖ Secondary prophylaxis (antibiotics) should be administered to prevent infection.
- ❖ Oxygen suplemenation is needed to improve circulation and to maintain balance between oxygen need and demand.

Surgical management

- ❖ Therapeutic abortion should be considered in early pregnancy
- ❖ Cardiac surgery may be an alternative to therapeutic abortion.

Effects of Pregnancy on Rheumatic Heart Disease
Maternal
Pregnancy can lead to the worsening of symptoms including

- Shortness of breath with simple activity
- Waking at night out of breath
- Pulmonary oedema
- Atrial fibrillation or clotting

Fetal:

- Abortion
- Intrauterine growth retardation
- Still birth
- Premature labour
- Asphyxia
- Respiratory distress syndrome

Case Description

26 years old primigravida women with 38weeks+5days gestation with known history of Rheumatic heart disease with severe mitral regurgitation in the age of 14 years. She had rheumatic fever with sore throat in childhood age later she developed rheumatic heart disease. She received medications like Tablet. Pencillin G potassium from the onset of disease and she was on injection penicillin in 2012 for upto 18 months. She was admitted in antenatal ward with the complaints of breathlessness, palpitation, fatigue, weakness, bilateral pitting pedal edema for 2 months duration. On assessment her BP was 110/80 mmHg, pulse 96 beats/mt and she was conscious and oriented. She has undergone investigations like complete blood count and thyroid hormone test. Her Hb is 12.1gm/dl, WBC 9,400cells, platelet 2.19 lakhs and TSH level was 4.760 micro IU/ml. Then she had echo. In that the findings are severe MR with dilated left atrium and pulmonary hypertension (42mmhg). EF level was 63%. She is on medical treatment like Tab. Lasix-40mg, Tab. Pentids-400000 units, Tab.Eltroxin-50mcg, Tab. Livogen and Tab. Calcium. She is on salt restriction diet with 1 litre fluid restriction. Mother kept under observation.

Then she has undergone the elective LSCS. She delivered an alive male baby with the birth weight of 2.01kg. APGAR score is 7/10 at 1 min, 8/10 at 5 min. Mother & baby were healthy and kept under close observation till the 4th post-operative day. Then the mother and her baby discharged from the hospital on 7th post operative day with diuretics and antibiotics.

Nursing Care

- Rheumatic heart disease can be very unpredictable and manifests in many atypical ways and it leads to severe complications can arise.
- Attention should be drawn to the pulse, respiration and blood pressure during birth. Continuous monitoring of pulse and repeated Blood pressure measurements to be taken.
- Fast initiation of proper treatment may be crucial for the outcome.

Nursing Diagnosis

1) Decreased cardiac output related to inadequate blood pumped by the heart to meet metabolic demands of the body as evidenced by tachycardia
   Goal: Maintaining normal cardiac output.

Interventions

- Assess heart rate, heart sounds for gallops and blood pressure
- Note skin color, temperature and moisture
- Check for peripheral pulses including capillary refill
- Assess for reports of fatigue and reduced activity tolerance
- Inspect fluid balance and weight gain (weigh the mother prior to breakfast)
- Monitor ECG for rate, rhythm and ectopy
- Provide adequate rest with semi fowler's position

- Administer oxygen therapy as prescribed.

Activity intolerance related to imbalance between oxygen supply and demand as evidenced by fatigue/ weakness.
Goal: Maintain normal activity.

Interventions

- Assess level of fatigue, ability to perform ADL and other activities in relation to severity of the condition
- Assess dyspnea on exertion, skin color changes during rest and when active
- Allow for rest periods between care
- Inform of activity or exercise restrictions and to set own limits for exercise and activity
- Inform to request assistance when needed for daily activities.

Ineffective family coping related to situational and developmental crises of family and child as evidenced by family expresses concern and fear about delivery process.
Goal: Mother and her relatives will be free of fear and to promote coping strategies.

Interventions

- Observe for erratic behaviors (anger, tension), perception of crisis situation
- Assess usual family coping methods and effectiveness
- Assess need for information and support
- Maintain good rapport with mother and her relatives
- Encourage mother to expression of feelings and provide factual information about delivery process
- Clarify any misinformation and answer questions regarding disease process
- Provide psychological support to the mother.
- Assist in identifying and using techniques to cope with and solve problems and gain control over the situation
- Refer family for additional support and counseling, if indicated.
- Risk for infection related to chronic illness.
  Goal: To prevent infection.

Interventions

- Assess temperature, pulse, respiration, IV site and WBC count.
- Instruct the mothers to maintain personal hygiene and practices.
- Provide adequate rest and nutritional needs.
- Wash hands before giving care.
- Use sterile technique for IV maintenance.
- Administer antibiotics as ordered.
- Inform to avoid contact with infected persons.

Conclusion

The rheumatic heart disease continues to be a major cause of cardiac disease complicating pregnancy. Women with RHD of reproductive age must receive early preconception evaluation and advice regarding the potential impact of pregnancy on their cardiovascular function. Those who chose to conceive or present after conception need management by a MDT with emphasis on identifying and avoiding triggers of decompensation and fetal anomaly/loss throughout pregnancy and the puerperium. Even though multidisciplinary management reduces the adverse events resulting in satisfactory maternal and fetal outcomes.

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