Undiagnosed Hypothyroidism in Pregnancy Leading to Myxedema Coma in labor: Diagnosing and managing this rare Emergency

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Abstract

Myxedema crisis is an extreme complication of uncontrolled hypothyroidism. It is usually seen in elderly women with undiagnosed hypothyroidism and is rare among young. There have been very few reports of myxedema coma in labor. This report pertains to a case of undiagnosed hypothyroidism in a 30 year old lady with twin pregnancy which led to hypothyroidism crisis during labor. Levothyroxine 100 microgram was given by Ryle’s tube followed by 8 hourly doses till total dose of 900 microgram. Rapid and robust correction of hypothyroidism led to successful treatment outcome. Treatment requires a rapidly administered oral or parenteral loading dose and high maintenance doses of levothyroxine. She delivered vaginally and both the babies were fine. Maintenance dose of 100 ugm of levothyroxine was started and patient was discharged after 15 days of delivery with an advice of 100 micrograms of levothyroxine daily.

Introduction

Myxedema crisis is a potentially fatal complication of uncontrolled hypothyroidism manifesting as progressive mental deterioration like lethargy, stupor, delirium, or coma and multiple organ abnormalities. Diagnosis of this rare phenomenon is hampered by its insidious onset. It usually occurs when precipitating factors like infection, illness, drugs, labour and delivery etc weaken the compensatory responses. Despite appropriate treatment, mortality ranges between 30 to 50 percent; more so in pregnancy. Myxedema coma is usually seen in elderly women with undiagnosed hypothyroidism and is rare among young. There have been very few reports of myxedema coma in labor [1] We are reporting a case of hypothyroid crisis during labor in a 30 year old pregnant lady.

Case

A 30 years old unbooked primigravida with 37 weeks gestation and twin pregnancy presented with gross pedal edema and borderline high blood pressure. She belonged to low socio-economic strata and had no previous antenatal visits. On examination she had facial puffiness, dry skin, gross pedal edema, blood pressure of 136/90 mm Hg. Urine albumin was not detectable.

Due to her borderline high blood pressure records and gross pedal edema she was investigated on lines of gestational hypertension. Her kidney and liver function tests were normal. She had mild anemia of normocytic normochromic type. 24-hour urinary protein was 290 mg. She had TSH level of 51.53 µIU/ml, T3 level of 4 ng/dl, T4 level of 4.1 and anti thyroperoxidase antibody > 1300 IU/ml. She had a normal renal ultrasound and venous doppler of lower limbs.

Patient was started on levothyroxine 75 microgram daily. After six days of admission her blood pressure shoot to 160/106 mm Hg and she was induced with intracervical prostaglandin E2 gel in view of term pregnancy with gestational hypertension. Her blood pressure was within normal limits and urine albumin was nil throughout labor. But the patient's condition deteriorated and she had altered mental status. Drop in heart rate of first twin was noted but her relatives did not give consent for cesarean section due to high risk of anaesthetic complications associated with severe hypothyroidism. The first twin was delivered by venouse application and second twin by assisted breech extraction. First twin was kept in neonatal intensive care unit for 15 days in view of birth asphyxia. Both the babies were fine eventually.

In the postpartum period the patient deteriorated with altered mental status (Glasgow coma score of 7), bradycardia (PR = 40 to 55/ min), hypotension (Systolic BP 70 mm Hg), hyperthermia (95°F), respiratory acidosis (pH = 7.3) and APACHE score II of 15. Patient was resuscitated and started on dopamine drip which was gradually tapered off later. Patient was shifted to High Dependency Unit. Endocrinologist was consulted and diagnosis of myxedema crisis was made. Levothyroxine 100 microgram was given by Ryle’s tube followed by 8 hourly doses till total dose of 900 microgram. She also received prophylactic injectable antibiotics and hydration ensured. Patient gradually responded to the treatment and improved symptomatically. Maintenance dose of 100 ugm of levothyroxine was started and patient was discharged after 15 days of delivery with an advice of 100 micrograms of levothyroxine daily. She came for regular follow up in endocrinology clinic with significant improvement by 12 weeks.

Discussion

Myxedema coma is rare entity among pregnant women with fewer than 40 cases reported [1]. Although the prognosis of patients with myxedema coma is difficult to determine, the poor predictors of outcome, as reported in the literature, include bradycardia, persistent hypothermia, altered level of consciousness, a high APACHE II score at presentation, hypotension and need for mechanical ventilation.

Obstetric guidelines recommend aggressive replacement of thyroid hormone in hypothyroid pregnant women, regardless of the degree of thyroid function, to minimize the time the fetus is exposed to a...
hypothyroid environment [2]. Poor compliance of the patient is the most frequent cause of lack of response to oral thyroid supplementation [3]. Other important causes are malabsorption, pancreatic and liver diseases, previous GI surgeries, congestive cardiac failure, dietary interference, medications such as antacids, sucralfate, antiepiletics, calcium carbonate and pregnancy [4]. Also, thyroid hormone is important for differentiation and growth of intestinal mucosal cells, and hence the altered states of thyroid hormone might influence the oral hormonal absorption [5]. In our patient, the reasons could have been pregnancy itself along with calcium supplementation.

Thyroid hormone therapy is the backbone of treatment of patients with myxedema crisis [6]. T4 has been considered the safer preparation, as intravenous T3 classically has been related to cardiac ischemia and arrhythmias [7]. T4 therapy avoids major peaks and troughs, and values of serum T4 may be easy to interpret [8]. At present, both oral and intravenous T4 and T3 are used. Oral administration of T4 through Ryles tube has proved to be equally effective with a drawback that gastric atony may prevent absorption and put the patient at risk for aspiration. Dutta and colleagues compared 500 g of oral loading dose of T4 with 150 g of maintenance dose orally and 200 g of T4 intravenously until they regained their vital functions and were able to take oral medications in patients with myxedema crisis and did not find any difference in outcome among the patients [8]. After enquiry in numerous pharmacies, only one could provide the injection levothyroxine at a cost of Rs. 4700 per vial of 200 μg and that was also not routinely available with them. The patient had to get it by prior intimation. Thus in India, the drug is difficult to procure and expensive. Hence, our case was managed effectively by replenishing levothyroxine via Ryle’s tube. The treatment of myxedema crisis is not only replacement of thyroid hormone but also, supportive care, and identification of coexistent acute processes and their treatment.

Conclusion

Myxedema crisis is a rare entity which may be precipitated in diagnosed or undiagnosed hypothyroid laboring women. Treatment of this condition requires not only the use of higher than conventional maintenance doses of levothyroxine but also a rapid loading dose that can be given orally to achieve a normal serum T4 levels.

Conflicts of Interest

The authors share no conflicts of interest.

References