A Clinical Study of Maternal and Fetal Outcome in Known Cases of Hypothyroidism with Pregnancy on Treatment

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ABSTRACT

Aims and Objectives: To study the maternal and fetal outcome in known cases of hypothyroidism in pregnancy on treatment.

Method: A Randomised study of 100 known cases of hypothyroidism with pregnancy on treatment admitted in Basaveshwar teaching and general hospital, attached to Mahadevappa Rampure Medical College, Kalaburgi.

Conclusion: In our study, it has been shown that hypothyroidism with pregnancy who were on treatment has reached up to the term without any fetal and maternal complications.

Keywords: Hypothyroidism, Pregnancy, Pre-eclampsia, Twin Gestation.

INTRODUCTION

Thyroid disease during pregnancy is a very common clinical problem we are facing today because pregnancy has profound impact on thyroid gland and its functions.\(^1,8\)

Thyroid undergoes physiological changes during pregnancy such as moderate enlargement of thyroid gland and increased vascularity, $\beta$-hcg causes thyroid gland stimulation since the first trimester, due to structural similarity with TSH.\(^2,10\)

The Thyrotrophic activity of $\beta$-hcg causes decreasing serum TSH the first trimester.\(^3,14\) Hence pregnant women have lower serum TSH levels than the non-pregnant women.
Causes

1. Chronic autoimmune thyroiditis (Hashimoto’s)
2. Radioiodine ablation
3. Thyroidectomy
4. Silent/post-partum thyroditis
5. Subacute thyroditis
6. Iodine deficiency
7. Drugs-thionamide, lithium

SIGNS
Goitre (primary hypothyroidism), bradycardia, non-pitting edema, dry skin, delayed deep tendon reflexes, hypertension, slow speech, slow movements.4,9

SYMPTOMS
Fatigue, lethargy, weakness, cold intolerance, mental slowness, depression, dry skin, constipation, muscle cramps, irregular menstrual cycles, infertility, mild weight gain, fluid retention, hoarseness of voice.

Symptoms of hypothyroidism can often be masked by the hypermetabolic state of pregnancy.5,11

COMPLICATIONS OF HYPOTHYROIDISM IN PREGNANCY

MATERNAL
Abortion
Preterm
Prematurity
Pre-eclampsia
Anaemia
Abruptio placenta and
Post-partum hemorrhage is very common.

FETAL
Stillbirth
IUGR
NORMAL VALUES IN PREGNANCY

<table>
<thead>
<tr>
<th></th>
<th>1st TRIMESTER</th>
<th>2nd TRIMESTER</th>
<th>3rd TRIMESTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSH (mIU/L)</td>
<td>0.03-2.3</td>
<td>0.03-3.7</td>
<td>0.13-3.4</td>
</tr>
<tr>
<td>T4 (ng/dL)</td>
<td>0.86-1.77</td>
<td>0.63-1.29</td>
<td>0.66-1.12</td>
</tr>
<tr>
<td>(pmol/L)</td>
<td>11.1-22.9</td>
<td>8.1-16.7</td>
<td>8.5-14.4</td>
</tr>
<tr>
<td>T3 (pmol/L)</td>
<td>3.5-7.7</td>
<td>2.8-4.2</td>
<td>2.4-4.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>TSH-Normal</th>
<th>TSH-Increased</th>
<th>TSH-Decreased</th>
</tr>
</thead>
<tbody>
<tr>
<td>FT4-Normal</td>
<td>Normal</td>
<td>Subclinical hypothyroidism</td>
<td>Subclinical Hyperthyroidism</td>
</tr>
<tr>
<td>FT4-Increased</td>
<td>Consider TSH high</td>
<td>Hyperthyroidism (pituitary adenoma)</td>
<td>Hyperthyroidism (Graves Toxic Nodule)</td>
</tr>
<tr>
<td>FT4-Decreased</td>
<td>Consider TSH low</td>
<td>Hypothyroidism (primary thyroid failure)</td>
<td>Hypothyroidism (T3 TOXICOSIS)</td>
</tr>
</tbody>
</table>

INCIDENCE

- Normally in pregnancy incidence is 2-3%, among this subclinical hypothyroidism 2-2.5%. overt hypothyroidism 0.3-0.5% (6,7)
- In our study subclinical hypothyroidism is 0.8% and overt hypothyroidism is 0.12%.

METHOD

Randomised study of 100 known cases of hypothyroidism with pregnancy on treatment admitted in labour room with complains of labour pain, after taking consent, detailed history, and physical examination, sent all the basic investigations especially T4 and TSH and ultrasonography were performed in Basaveshwar Hospital, Mahadevappa Rampure Medical College, Kalaburgi.

Inclusion Criteria

All pregnant women in labour irrespective of parity, with spontaneous onset of labour, pre-eclampsia, Rh negative pregnancy, malpresentations, multiple pregnancies, preterm labour, polydrominos, previous LSCS.

Exclusion Criteria

Diabetes mellitus, jaundice in pregnancy, cardiac and other medical disorders.

Results

<table>
<thead>
<tr>
<th>No of Cases</th>
<th>Mode of Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCS</td>
<td>64</td>
</tr>
<tr>
<td>NORMAL VAGINAL DELIVERY(TWIN)</td>
<td>31(01)</td>
</tr>
<tr>
<td>PRETERM VAGINAL DELIVERY(TWIN)</td>
<td>01(01)</td>
</tr>
<tr>
<td>INSTRUMENTAL DELIVERY(VACCUM)</td>
<td>02</td>
</tr>
<tr>
<td>TOTAL CASES</td>
<td>100</td>
</tr>
</tbody>
</table>

According to TSH Levels

<table>
<thead>
<tr>
<th>Total No. of Cases</th>
<th>Subclinical Hypothyroidism</th>
<th>Overt Hypothyroidism</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>88</td>
<td>12</td>
</tr>
</tbody>
</table>
FT4 Levels IN 3rd Trimester

<table>
<thead>
<tr>
<th>FT4 (pmol/dl)</th>
<th>TOTAL NO. OF CASES(100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;8.5</td>
<td>12</td>
</tr>
<tr>
<td>8.5-14.4</td>
<td>88</td>
</tr>
</tbody>
</table>

Fetal Weight

<table>
<thead>
<tr>
<th>FETAL WEIGHT(KG)</th>
<th>NO. OF CASES(102)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5-1.9</td>
<td>02</td>
</tr>
<tr>
<td>2.0-2.5</td>
<td>55</td>
</tr>
<tr>
<td>&gt;2.5</td>
<td>45</td>
</tr>
</tbody>
</table>

Apgar score

<table>
<thead>
<tr>
<th></th>
<th>APGAR SCORE -1MIN</th>
<th>APGAR SCORE -5MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;7/10</td>
<td>97</td>
<td>101</td>
</tr>
<tr>
<td>&lt; 7/10</td>
<td>05</td>
<td>01</td>
</tr>
<tr>
<td>TOTAL</td>
<td>102</td>
<td>102</td>
</tr>
</tbody>
</table>
DISCUSSION
In our study, out of 100 cases admitted in labour room (majority are referred cases because of tertiary health centre), 64 patients underwent LSCS for an obstetrical condition like breech presentation, preeclampsia, CPD, previous LSCS, fetal distress and on demand.
- 32 patients had normal vaginal delivery
- 02 patients had preterm vaginal delivery
- 02 patients had instrumental vaginal delivery (vacuum extraction).
- It is observed that in our study all the women with known hypothyroidism with pregnancy who were receiving treatment with Tab THYROXINE 12.5μg, 25μg, 37.5μg, 50μg, 75μg, 100μg, 125μg, 150μg, 175μg respectively depending on their TSH level.
- Except for one case with twin gestation with 31 weeks of gestational age came in the active phase and delivered vaginally, both male babies weighing 1st twin 1.5kg, 2nd twin 1.5kg needed NICU admission.
- This Preterm delivery may be because of twin gestation which may not be attributed to the hypothyroidism.
- All other (99 cases), which have undergone LSCS and vaginal delivery, instrumental delivery- the maternal outcome are good and all babies weighing 2-3.75 kg, were healthy and not needed NICU admission and were on mother side.
- There were no still births and perinatal deaths.

CONCLUSION
In our study, it has been shown that 98% of cases of hypothyroidism with pregnancy who were on treatment has reached up to the term without any fetal and maternal complications. Tab levothyroxine is miraculous in the management of hypothyroidism with pregnancy.

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- Staff of medical record section
- Post graduate students of Obstetrics and gynecology department, Basaveshwar Teaching and General Hospital, Kalaburgi

REFERENCES