Reproductive performance in patients with thyroid disorders

Kamal Buckshee • Ranjeet Manchanda • Vatsla Dadhwal
All India Institute of Medical Sciences, New Delhi

Summary: Eighty five cases with thyroid disorders were analysed to study the antepartum and intrapartum complications and perinatal outcome. Twenty two patients had hyperthyroidism and 63 had hypothyroidism.The common complicating features associated with hyperthyroidism were PIH (18%),PROM (9%),IUGR (9%),and GDM (4.5%).Whereas in the hypothyroid groiup 12.7% patients developed PIH ,9.5% had GDM and 17.5% went postdated.In both the groups there was a high incidence of fetal distress, 27% in patients with hyperthyroidism and 22% in the hypothyroidism. A high incidence of abortions and still births was found in the past obstetric history of these patients. There was no maternal or perinatal mortality in the present pregancy.

Thyroid disorders are associated with high maternal and perinatal morbidity and mortality. Proper control of thyroid status, intensive fetal monitoring and timely intervention is the key to success in the management of these patients.

Reproductive performance in patients with thyroid disorders

Pregnancy is associated with major changes in the physiology of the pituitary thyroid axis, in iodine metabolism and in immune functions .Thyroid dysfunction arises frequently during pregnancy and pregnancy outcome may be profoundly altered by this . Thyrotoxicosis if untreated is associated with increased fetal loss,increased incidence of congenital anomalies, intrauterine growth retardation,still birth , hypertension and various problems.Uncontrolled hypothyroidism can also cause fatal loss,pregnancy induced hypertension, preterm labour, retarded growth,malformation, neonatal cretinism and mental retardation.Thus hyperthyroidism and hypothyroidism are associated with increase in maternal and perinatal morbidity and mortality.

The incidence of hypothyroidism is about 1% and hyperthyroidism around 0.4%.This paper focuses on the pregnancy outcome of 85 patients with thyroid disorders.

Material and methods:

Patients with thyroid disorder who were registered at the high risk antenatal clinic of the gynaecology department of All India Institute of Medical Sciences over last 5 years were studied.An analysis of antepartum and intrapartum complications and perinatal outcome was done; past obstetric history was also analysed.

Results :

Out of 85 cases analysed, 22 were hyperthyroid and 63 had hypothyroidism. Graves disease was the commonest cause of hyperthyroidism accounting for 80% cases.

The various antenatal complications occuring in both hypo & hyperthyroid patients are listed in Table-I In

Table-I
Antenatal Complications

Antenatal complications	Hyperthyroid patients n=22	Hypothyroid patients n=63
Pregnancy induced Hypertention	4 (18%)	8 (12.7%)
Premature rupture of membranes	2 (9%)	2 (3.2%)
Intra uterine growth retardation	2 (9%)	-
Gestational diabetes mellitus	1 (4.5%)	6 (9.5%)
Hyperemesis	1 (4.5%)	-
Arthritis	1 (4.5%)	-
Postdatism	-	11(17.5%)

both the groups 40-50% patients had some antenatal complication.Pregnancy induced hypertension (PIH)occurred in 18% of cases with hyperthyroidism and in 12.7% cases of hypothyroidism.17.5% patients with hypothyroidism went postdated ,while none with hyperthyroidism.

Table II shows the delivery and neonatal outcome in both

Table - II
Mode of delivery and neonatal outcome

	Hyperthyroidism n=22	Hypothyroidism n=63
LSCS	11 (50%)	16 (25.4%)
LSCS for fetal distress	5 (45.45%)	10 (55.56%)
Spontaneous Vaginal Delivery	9 (50%)	47 (74.6%)
Vacuum/Forceps Delivery	2 (9%)	4 (6.35%)
Birth weight ≤ 2.5 kg	6 (27.27%)	8 (12.7%)
Birth weight ≥ 3.5 kg	2 (9%)	10 (15.8%)
A/S < at 1 min	-	3 (4.76%)

the groups.Fifty percent of patients with hyperthyroidism underwent caesarean deliveries, of which 45.45 percent were for fetal distress.Similarly 55.5% of the caesarean sections in patients with hypothyroidism were for fetal distress.Patients with hyperthyroidism had higher incidence of low birth weight babies compared to patients with hypothyroidism (27.27% vs 12.7%).The list of neonatal complications in both the groups is given in Table III.Neonatal jaundice was common in both the groups.

Of 22 patients with hyperthyroidism 21 were well controlled. One patient had low TSH,she developed PIH and required caesarean section for fetal distress.Fifty seven percent of patients were on propylphiouracil and 29% were receiving neomercazole; 14% were clinically euthyroid and had stopped medication within 1 year.

Fifty three patients with hypothyroidism were on eltroxin.Ten were not on medication,of these 9 were

Table - III
Neonatal Complications

Neonatal Complication	Hyperthyroid n=22	Neonatal Complication	Hypothyroid n=63
Physiological Jaundice	18%	Physiological Jaundice	22.2%
Erythema toxicum	9%	Polycythemia	4.8%
Hypoglycemia	4.5%	Hyperbilirubinemia	3.2%
Stridor	4.5%	Birth asphyxia	3.2%
Jitteriness	4.5%	Hypotonia	1.6%
		Toxic erythema	1.6%

euthyroid and had no antenatal/intranatal complication.One patient with hypothyroidism had raised TSH, she required forceps delivery for fetal distress. neonate had low birth weight.

A review of past obstetric history revealed poor obstetric outcome in majority of patients. Twenty seven percent of patients with hyperthyroidism had history of abortion, a similar percentage had history of stillbirths. Patients with hypothyroidism also had bad obstetric history, 32% had history of abortion, 24% of stillbirths and had delivered an anencephalic fetus.

There was no case of still birth, neonatal death or maternal death in the present pregnancy.

Discussion :

Thyroid disorders are associated with poor obstetric performance as well as increased maternal and neonatal morbidity and mortality,challenging the obstetrician.

We found a high incidence of abortions and stillbirths in the past obstetric history of both hyperthyroid and hypothyroid patients. Our findings are corroborated by existing literature. Davis et al (1989) report a 10% incidence of still birth in 60 hyperthyroid patients out of which the incidence was 50% in the untreated group.Sheriff et al (1991)reported 17% abortion rates in hyperthyroid women on medical treatment. Women with hypothyrodism have twice the incidence of abortion compared to controls (Montoro,1997).Davis et al (1988) reported 12% still births in 28 pregnancies complicated

by hypothyroidism.

Almost half the patients with thyroid disorder had antenatal complications. In patients with hyperthyroidism,PIH (18%),preterm rupture of membranes 9%, and intrauterine growth retardation (9%) were common.Miller et al (1994) reported a 14% incidence of preeclampsia in women with hyperthyroidism.In the same study he found a 30% incidence of low birth weight babies in women who achieved euthyroid status at delivery; and in our study the incidence was 27.27%.The common altenatal problems in patients with hypothyroidism were PIH (12.7%),GDM (9.5%), and postdatism (17.5%).Buckshee et al (1992) also reported many complications in hypothyroid pregnancy-anemia (23%) PIH (26.9%) PPH (7.7%) IUGR (15.4%) and post datism (30.8%). Leung et al (1993) also found a high incidence of PIH (15.4%) and low birth weight babies (11.54%)in hypothyroid patients.

In both group of patients there was a high incidence of fetal distress (27% in hyperthyroid and 22% in hypothyroid group),this can be explained on the basis of high incidence of antenatal complications.

There was no newborn with congenital malformation or chromosomal anomaly in our series,as majority of our patients were well controlled on medication.Momotani et al (1984) found that incidence of congenital malformations is related to poorly controlled thyrotoxicosis. Kennedy et al (1992) found autoimmunity to be a risk factor for nondysjunction and therefore associated with increased risk of chromosomal anomaly.

There was no serious noenatal morbidity or maternal and neonatal mortality.This was probably due to good control of thyroid status in our patients, intensive fetal monitoring and timely intervention.

Thyroid disorders in pregnancy are a major challenge to the obstetrician,they can threaten both maternal and fetal wellbeing.These patients have high incidence of antepartum/intrapartum and neonatal complications as borne out in our study.Hence, they require good control of thyroid status and fetal monitoring to achieve a good maternal and perinatal outcome.

Reference:

1. Buckshee K , Kriplani A , Kapil A , Bhargava VL Thakkar D.Aust N Z Jobstet Gynae.32 ; 240:1992.
2. Davis LE ,Lucas MJ,Hankins GDV ,Roark MZ,Cunningham FG. AM J Obstet Gynec 160:63;1989.
3. Davis LE ,Leveno KJ ,Cunningham FG. Obstet Gynaecol.72 ; 108 :1988
4. Kennedy RL ,Jones TH , Cuckle HS. Clin.Endocrino 37 ;471 :1992.
5. Leung AS ,Millar K ,Kooning PP,Montoro M Mestman JH.Obstet Gynecol. 81 (3); 349 :1993.
6. Millar LK ,Sing DA ,Leung AS, Am J Obstet Gynaecol 84 ;946:1994
7. Momotani N, Ito K ,Hamada N,Ban Y ,Nishikowa Y,Mimura T. Clin Endocrinol.20;695:1984
8. Montoro MN .Clin Obstet Gynecol.40(1):65:1997
9. Sheriff IH ,Oyan WT, Bosain S. Acta Obstet Gynec Scand.70;461: 1991