



Volume: 2 (May, 2019)

Indian FERTILITY Society

HYPOTHYROIDISM AND REPRODUCTIVE HEALTH

SYNAPSES

The thyroid gland controls rate of metabolic processes throughout the body via the production of two hormones triiodothyronine (T3) and thyroxine (T4). As the function of the thyroid gland is under the control of the hypothalamo-pituitary axis, changes in thyroid function can impact greatly on reproductive function before, during and after conception. Thyroid disease is classically divided into hyperthyroidism and hypothyroidism, and the causes of thyroid disease are numerous (**Table 1**).¹

Causes of Hypothyroidism

Primary Hypothyroidism

- **Autoimmune diseases:** Atrophic Thyroiditis, Hashimoto's Thyroiditis
- **Atrogenic:** Radioiodine therapy, Thyroidectomy, Antithyroid drugs
- **Transient:** Subacute Thyroiditis, Postpartum Thyroiditis
- **Iodine deficiency**

Secondary Hypothyroidism

- Pituitary failure
- Pituitary tumor

Tertiary Hypothyroidism

- Hypothalamic failure

Normal pregnancy is associated with an increase in renal iodine excretion, an increase in thyroxine binding proteins, an increase in thyroid hormone production and thyroid stimulatory effects of hCG (human Chorionic Gonadotropin) and there is reduction in serum TSH (Thyroid Stimulating Hormone). Following conception, circulating thyroxine binding globulin (TBG) and total T4 concentrations increase by 7 weeks of gestation and reach a peak by 16 weeks of gestation and remain high until delivery.

Hypothyroidism in pregnancy is a common condition with overt disease affecting approximately 0.5% of women, and subclinical disease approximately 2.5%. When iodine nutrition is adequate, **the most frequent cause of hypothyroidism is autoimmune thyroid disease (Hashimoto's thyroiditis)**. The thyroid autoantibody can be detected in approximately 30%–60% of pregnant women with an elevated TSH concentration.²

Both overt and subclinical hypothyroidism are associated with an increased risk of adverse obstetric and neonatal outcomes (Table 2).¹

Table 1: Complications of Hypothyroidism in pregnancy¹

Maternal	Neonatal
Anemia	Fetal Distress in labor
Post Partum Haemorrhage	Prematurity/Low birth weight
Cardiac Dysfunction	Congenital Malformations
Preeclampsia	Perinatal Death
Placental abruption	Still Birth/Neurodevelopmental delay

Screening

The universal screening for abnormal TSH concentrations in early pregnancy is not recommended. At present a high-risk screening approach is currently adopted, therefore women at high risk (Table 3) should be screened.²

Table 2: Risk factors for thyroid dysfunction²

Maternal
Family/ Personal history of thyroid dysfunction / thyroid surgery
Goitre
Positive thyroid auto antibodies (anti TPO), Thyroid Peroxidase antibody
Diabetes type 1 / Other autoimmune diseases
Clinical signs and symptoms of hypothyroidism
History of miscarriage / Preterm delivery
History of subfertility
History of therapeutic head and neck irradiation
Age \geq 30years/Morbid obesity (BMI \geq 40Kg/m ²)
Previous treatment with Amiodarone / Lithium
Recent exposure to iodinated radiological contrast agent
Residing in an area of known moderate or severe iodine insufficiency

Diagnosis

The hypothyroidism during pregnancy is diagnosed by measuring **serum TSH and serum T4**.

Primary overt maternal hypothyroidism is defined as the presence of an elevated serum TSH and a decreased serum FT4 (Free Thyroxine) concentration during gestation, with both concentrations outside the (trimester-specific) reference ranges (Table 4)²

Subclinical hypothyroidism is defined as presence of an elevated serum TSH and normal serum FT4 concentration during gestation.

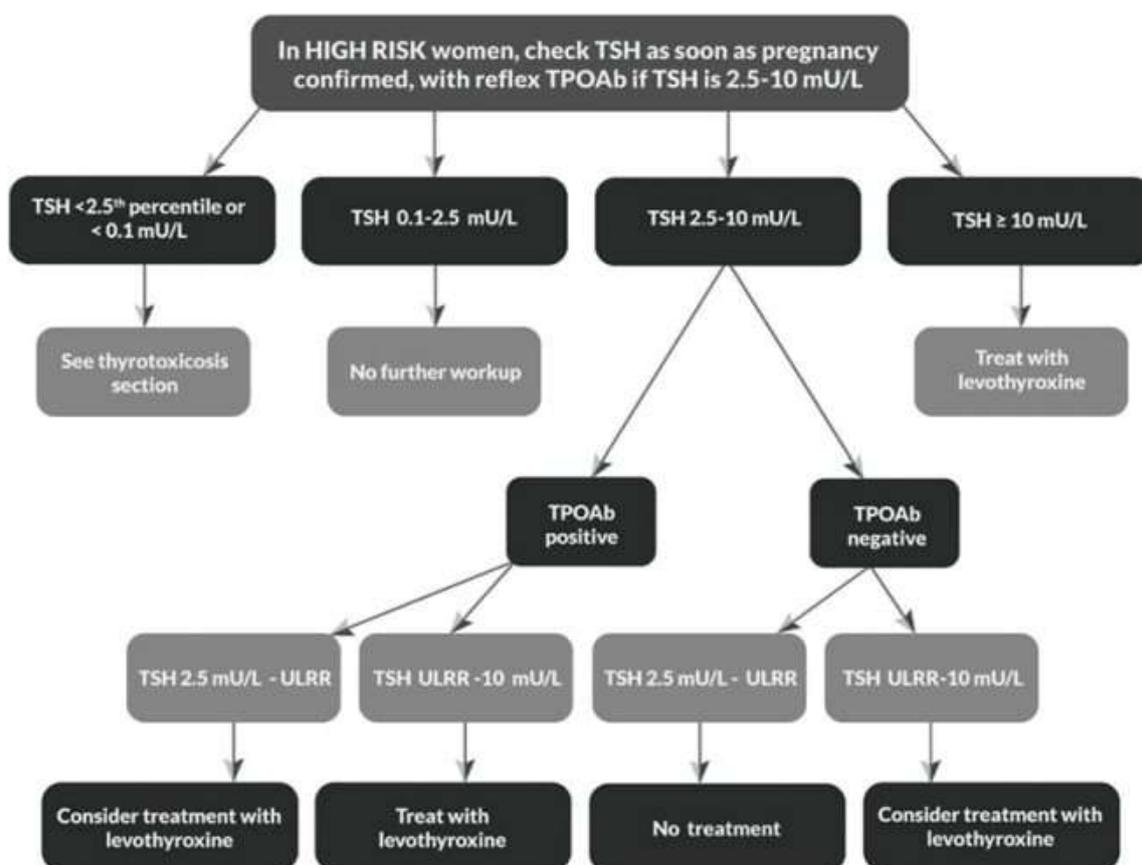
Table 4: Trimester specific TSH reference ranges²

Trimester	TSH reference range
First(7-12 weeks)	The lower reference range of TSH can be reduced by approximately 0.4 mU/L, while the upper reference range is reduced by approximately 0.5mU/L (corresponds to 4mU/L).
Second and third trimesters	Nonpregnant range (0.5mU/L to 4.5-5mU/L)

Treatment (Figure 1)²

The oral Levothyroxine (LT4) is drug of choice for treatment of hypothyroidism in pregnancy. The dose of LT4 is increased by 20%-30% in hypothyroid patients receiving LT4 treatment with a suspected or confirmed pregnancy (e.g., positive home pregnancy test).²

Figure 1: Testing and treatment of Hypothyroidism in Pregnancy, ULRR (upper limit of the reference range)²



To summarize, If TPOAb positive consider treatment if serum TSH is more than 2.5mU/L and if TPOAb negative consider treatment if TSH is more than ULRR.

Monitoring during pregnancy

Women with overt and subclinical hypothyroidism (treated or untreated) or those at risk for hypothyroidism {e.g. patients who are euthyroid but TPOAb (Thyroid Peroxidase antibody) or TgAb (Thyroglobulin antibodies) positive} should be monitored with a serum TSH measurement approximately **every 4 weeks until midgestation and at least once near 30 weeks gestation.**²

Postpartum

Following delivery, LT4 should be reduced to the patient's preconception dose. Additional thyroid function testing should be performed at approximately 6 weeks post partum.²

Hypothyroidism and Infertility

Hypothyroidism affects the pulsatile release of gonadotrophin-releasing hormone, which is required for cyclical release of follicle-stimulating hormone and luteinising hormone and subsequent ovulation. Hypothyroidism in childhood and adolescence is associated with a delay in reaching sexual maturity and in adulthood is associated with menstrual disturbances (like oligomenorrhoea, menorrhagia and amenorrhoea). Hypothyroidism also alter the feedback to the pituitary by changing estrogen metabolism and circulating levels of sex hormone-binding globulin.¹

Evaluation of serum TSH concentration is recommended for all women seeking care for infertility. LT4 treatment is recommended for infertile women with overt hypothyroidism who desire pregnancy.²

The prevalence of thyroid autoimmunity is higher among infertile patients, especially when infertility is caused by endometriosis or ovulatory dysfunction. There is fair evidence that thyroid autoimmunity is associated with infertility. LT4 may improve pregnancy outcomes in female with positive thyroid antibodies especially if serum TSH is > 2.5 mIU/L.³

The overt hypothyroidism affects the semen parameters as well as sexual behavior. The treatment with LT4 has significant improvement in semen parameters and sexual behavior. The subclinical hypothyroidism does not affect the semen parameters.⁴

References

1. Jefferys A, Vanderpump M, Yasmin E. Thyroid dysfunction and reproductive health. The Obstetrician & Gynaecologist 2015;17:39-45.
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3. Practice committee of the American Society for Reproductive Medicine. Subclinical hypothyroidism in the infertile female population: a guideline. Fertil Steril 2015;104(3):545-553.
4. K Anand, S Skand, D Bodhana. Thyroid and Male reproduction. Indian J Endocrinol Metab 2014;18(1):23-31.

Dr M Gouri Devi
President

Dr Pankaj Talwar
Secretary General

Contributor

Dr Parul Garg
IVF Consultant

Dr Rupali
IVF Consultant
Executive Member
Chief Coordinator
Synapses - IFS

Dr Rhythym Ahuja
IVF Consultant
Co-coordinator
Synapses - IFS

+91 9667742015
+91 9899308083

+91 11 40018184

indianfertilitysocietydelhi@gmail.com

www.indianfertilitysociety.org

IFS SECRETARIAT

302, 3rd Floor, Kailash Building

Kasturba Gandhi Marg, C.P, New Delhi-110001

Contact No. 9899308083 Email Address - indianfertilitysocietydelhi@gmail.com Web - indianfertilitysociety.org

Organised by



Theme: Beyond Tomorrow

15th Annual Congress of
Indian Fertility Society
FERTIVISION
2019 6-8 December
The Leela Ambience Hotel, Gurugram
New Delhi | India



www.fertivision2019.com

Invitation

Dear Friends, Welcome to *FERTIVISION 2019*

On behalf of the Indian Fertility Society (IFS), we are extremely pleased to announce and cordially invite you to the much awaited academic event – the **15th National Annual Conference - Fertilvision 2019**, to be held on **6th, 7th & 8th December 2019** at Hotel **The Leela Ambience, Gurugram, New Delhi / NCR, India**.

This conference is aimed to provide the most comprehensive academic platform in the field of Infertility and Assisted Reproductive Technology (ART)” befitting the theme of the meeting **“Beyond Tomorrow”**

Renowned and leading expert faculty from around the world would gather and deliver talks in our cutting edge scientific program which will not only enrich your current knowledge and clear all doubts faced in day-to-day clinical practice, but will also enlighten you about the latest innovations and ongoing research.

A large number of renowned international faculties have already confirmed their participations till date. The pre-congress workshops on 6th December are specially designed for informal in-depth training with hands on sessions on simulators and live, where ever feasible. There will be 4 simultaneous running streams on 7th & 8th December covering a wide variety of topics, enabling you to choose the deliberations specific to your area of interest and clinical practice. We are having a dedicated hall for the esteemed embryologist friends.

The best oral and poster presenters under various categories and the quiz winners will be honoured with special awards and prizes. Do join us in large numbers and update your knowledge with most updated current standards in clinical practice, as well as get inspired to innovate further to overcome remaining enigmatic issues!

The three days of scientific program will encompass didactic lectures, keynote presentations, panel discussions and orations. There will be 9 Preconference workshops based on Ovulation Induction, Ultrasound, Andrology, Embryology, Hands on Embryo Transfer, Ovum Pickup and more. These workshops will be in addition to the special state of the art workshops by the faculty from IFFS and ESHRE. We expect delegates across India, Sri Lanka, Bangladesh, Nepal, Middle - East Countries and African Nations and the arrangements are being made to accommodate more than 2500 delegates.

The exhibition area will be one of the highlights of the conference. Exhibiting provides tremendous benefits to both participating industry and the society. Tea, coffee and lunch will be served confluent with the trade area to allow optimal interaction between the trade companies and delegates during beverage and lunch breaks.

We invite you to participate in the Fertilvision 2019 and exchange your expertise with more than 2500 specialists in the field of Assisted Reproduction.

We look forward to your active participation and suggestions for successful conduct of the conference.

With Our Best Regards



Dr. M Gouri Devi
Organizing Chairperson
FERTIVISION 2019



Dr. Pankaj Talwar
Organizing Secretary
FERTIVISION 2019



FERTIVISION

2019

6-8 December The Leela Ambience Hotel
Gurugram, New Delhi, NCR | India

Registration Form

Title Prof/ Dr/ Mr/ Ms _____

Gender : Male Female

First Name _____ Last Name _____

Institution _____ IFS Member No. _____

Correspondence Address _____

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(All the above fields are mandatory)

Choose from 10 Pre Conference Workshops | 6 December Choose Any 1 Workshop

Limited
Seats

1) <input type="checkbox"/> IFFS Workshop on Do's and Don'ts in Ovarian Stimulation	7) <input type="checkbox"/> QA / QC
2) <input type="checkbox"/> Reproductive Surgery	Pre Lunch Workshop (0900 - 1300 Hrs)
3) <input type="checkbox"/> Ultrasonography Imaging In Infertility	8 A) <input type="checkbox"/> Counselling & Psychological Support
4) <input type="checkbox"/> Andrology & Semenology	Post Lunch Workshop (1400 - 1700 Hrs)
5) <input type="checkbox"/> Ovum Pickup and Embryo Transfer (With Simulators)	8 B) <input type="checkbox"/> Research Methodology
6) <input type="checkbox"/> Cryobiology	9) <input type="checkbox"/> PGT and Genomics

Inclusive of 18% GST

Registration Fees

Please tick the appropriate checkbox

Category	Early Bird Fees Till 15th July 2019	Regular Fees Till 15th October	Onspot
IFS Member	INR 10500 <input type="checkbox"/>	INR 12500 <input type="checkbox"/>	INR 14500 <input type="checkbox"/>
Non IFS Member	INR 12500 <input type="checkbox"/>	INR 14500 <input type="checkbox"/>	INR 16500 <input type="checkbox"/>
Conference Registration plus Life Time IFS Membership	Embryologist INR 14500 <input type="checkbox"/>	Embryologist INR 16500 <input type="checkbox"/>	Embryologist INR 18500 <input type="checkbox"/>
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Accompanying Person	INR 10500 <input type="checkbox"/>	INR 11500 <input type="checkbox"/>	INR 12500 <input type="checkbox"/>
Foreign Delegates	\$ 350 <input type="checkbox"/>	\$ 400 <input type="checkbox"/>	\$ 500 <input type="checkbox"/>

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Conference Registration Fees Includes

- 18 Hrs of World Class Academic Program with Access to Best & Brightest International & National Faculty
- 3 Lunches and 6 Tea / Coffee Served During the Conference on 6, 7 & 8 December
- Banquet Dinner on 7 December
- Conference Kit (Including Bag, Badge, Notepad, Certificate & Pen)
- 1 Pre Conference Workshop
- Accompanying Person is Entitled for Food Coupons Only

Mode of Payment

1. Bank Draft/Cheque - To be made in favor of "INDIAN FERTILITY SOCIETY"

2. Bank Transfer Details

IFS Account Name : Indian Fertility Society

Account Number: 50562010067180

IFSC Code : ORBC0100179

Bank Name: Oriental Bank of Commerce

Branch: Connaught place, New Delhi- 110001

Cancellation Policy

- Cancellation till 31st October, 2019 – 50% Refund.
- Cancellation from 1st November, 2019 – No Refund.
- All refunds will be made after the congress.

Cheque / Draft No. _____ Total Amount _____

Note: Kindly email us bank deposit slip / UTR number once you made the payment for our record. Payment confirmation will take 7-10 working days post deposit of cheque, DD or RTGS

3. To Register online log on to www.fertivision2019.com

Congress Manager's



Mr. Vikas Sharma
Conferences International
B-220/2, 2nd Floor,
Opposite Kali Masjid, Savitri Nagar
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