

Effects of Hypothyroidism on Female Reproductive Health

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ABSTRACT

Hypothyroidism refers to deficiency of thyroid hormone caused due to various reasons. Hypothyroidism incidences occurs more in females than in males (6:1 ratio), total 2% of women suffering from hypothyroidism. There is 6-8% subclinical and 2.5% of pregnant women develop hypothyroidism¹. Analyzing hypothyroidism in Ayurveda, we note that, the *kapha* and *vata dosha vridhi* and *pitta dosha kshaya* is seen. Some physician considers hypothyroidism as a *sthanik vyadhi* under *Galaganda roga*, its *dusti lakshanas* are seen in whole body. Hypothyroidism gives adverse effect on reproductive health and results in reduced rates of conception, increased miscarriage risk and adverse pregnancy and neonatal outcome. Low levels of thyroid hormone can interfere with release of egg from ovary (ovulation), which impairs fertility. Hypothyroidism shows severe effects on female reproductive health which not only interferes with menstrual cycle and fertility but also cause problems in pregnancy and proper development of fetus.

Keywords: - Hypothyroidism, *Galaganda*, Female reproductive system

INTRODUCTION

Gender differences play a role in manifestation of diseases and health outcomes. In context of hypothyroidism women are affected more than males in the ratio of 6:1. The global incidences of hypothyroidism increasing to the people who are exposed to more stress and strain, as thyroid gland easily respond to stimulant like stress and strain. Present day's life style of women is responsible for various hormonal disorders in them as like hypothyroidism. Present study focus on the effect of hypothyroidism on female reproductive life and Ayurvedic conceptual related with hypothyroidism. It will help to understand the pathology of hypothyroidism according to the *Dosh-Dushya Samurchana*. So we can find alternative way for the prevention and cure of this disorder.

Hypothyroidism

Hypothyroidism refers to any state that result in a deficiency of thyroid hormone, including hypothalamic or pituitary diseases & any generalized tissue resistance to thyroid hormone disorders that affect the thyroid gland directly.

Pathogenesis Of Hypothyroidism In Female Reproductive System

Thyroid dysfunction can cause disturbances in the ovarian cycle and also ovulation, but, the molecular link between these two disorders still largely unrevealed. Hypothyroidism causes decreased rates of metabolic clearance of androstenedione and estrone in women and unveils an increase in peripheral aromatization. Hypothyroid women also exhibit decreased 5 α/β ratios of androgen metabolites, and also show an increase in excretion of 2-oxygenated estrogens. In hypothyroidism plasma binding activity of SHBG (sex hormone binding globulin) is decreased, which results in decreased plasma concentrations of both total testosterone and E2 (estradiol), but their unbound fractions are increased. Altered metabolism of these gonadal steroids disappears when a euthyroid state is restored. The gonadotropins (Gn) level usually remains normal in hypothyroidism.

Ovarian follicles, from the pool of resting primordial follicles either continue to grow from preantral to antral follicles due to survival signals, such as gonadotropins and growth factors, or degenerate and die by the process of follicular atresia. Expressions of hormones and growth factors have been shown to regulate the destiny of the ovarian follicle. In

humans, disorders of the thyroid gland are responsible for a dysregulation of the hypothalamus, pituitary, gonadal axis, and hypothyroidism is associated with oligomenorrhea. The follicular fluid composition might be the important regulator for developing oocytes and may play a substantial role in oocyte quality. Both T3 and T4 are found in the follicular fluid of humans, and a positive correlation was demonstrated between serum T4 and follicular fluid T4 levels. The presence of thyroid hormone receptors in human oocytes may explain TH response on the ovaries. Both is of or ms of TRs (thyroid receptors) messenger RNA (mRNA) are expressed in the human oocyte. Therefore, thyroid hormone may directly affect the oocyte.

There is a direct connection between thyroid hormones and female reproductive hormones. In this paper, we explained the alteration in the levels of reproductive hormones in reproductive age group hypothyroid female.

Serum level of FSH and LH are significantly low in cases of overt hypothyroid women between day 2 and 5 of the cycle. Studies have demonstrated that serum estradiol was also reduced significantly in the hypothyroid state when compared to the control. There is a positive correlation in between TSH and PRL in hypothyroid women.* In several study, it was shown that T4 administration in hypothyroidism normalizes PRL and LH levels, increased folliculogenesis and estradiol secretion, reverses menstrual abnormalities and increases spontaneous fertility, which clearly indicates the relation between thyroid hormone and Prolactin & menstrual hormone. T3 is considered a biological amplifier of the stimulatory action of gonadotropins on granulosa cell function.²

Hypothyroidism Effects On Female Reproductive Symptoms³

The functions of thyroid gland have much to do with a woman's reproductive system, particularly if thyroid gland is under active. Hypothyroidism may have the following effects on woman's body:-

1) Puberty And Menstruation: - Hypothyroidism can cause puberty to occur abnormally or late. It causes irregular menstrual cycle, oligomenorrhea sometimes amenorrhea.

2) Reproduction: - Infertility could stem from hypothyroidism in both sexes, but it more common in females. Hypothyroidism affects ovulation. It delayed or prevents ovulation occurring at all, which causes infertility. In addition, the ovaries are at an increased risk for cyst development. Hypothyroidism can actually cause milk production in breast, which prevents ovulation.

3) Pregnancy And Postpartum: - Thyroid disorders during pregnancy can harm the fetus and may Leads to thyroid problems in mother after delivery, such as postpartum thyroiditis. A deficiency of thyroid hormone can causes–

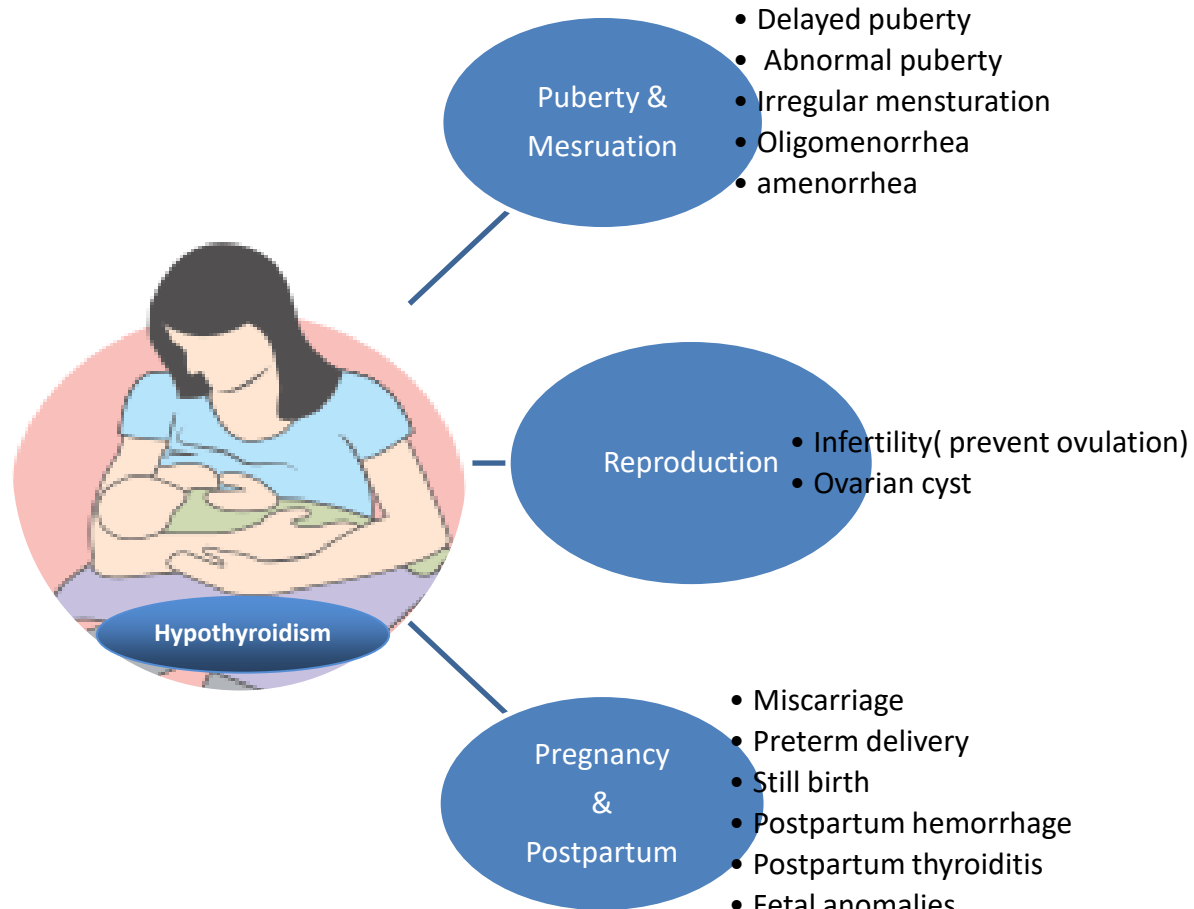
*Miscarriage

*Preterm Delivery

*Still Birth

*Postpartum hemorrhage.

4) Breast: - Some women with moderately sever hypothyroidism can also experienced Galactorrhea (a discharge from breast) due to increased production of Prolactin hormone.



Analysing Hypothyroidism In Ayurved⁴

There is no clear description of hypothyroidism found in Ayurveda, but if we analyzing hypothyroidism then it shows, the *kapha* and *vata vridhi* and *pitta kshaya*. Some text considers hypothyroidism as a *sthanik vyadhi* under *Galaganda roga*, which produces symptoms all over the body. The *samprapti ghatak* of hypothyroidism can be described as -

Samprapti Ghatak:-

- *Dosha - kapha & vata vridhi , pitta kshaya*
- *Dushya- all dhatus, predominantly Rasa & Meda*
- *Agni - jatharagni, dhatwagni*
- *Ama - jatharagni mandya & dhatwagni mandya janita*
- *Srotodusti - sanga & vimargagamana*
- *Adhistan - gala Pradesha*
- *Udhhav sthan - amashaya*
- *Rogmarga – bahya*
- *Vyakta sthan - sarv sharir*

DISCUSSION

Hypothyroidism is a *kapha-vataj* disorder which initially starts from the *amashya* and affects the whole body. It directly affects on the *artava chakra* and *stri beeja* by affecting *Rasa dhatu*, because artava is the *up-dhatu* of *rasa*. Defect in



rasa dhatu directly cause abnormality in the menstruation which further cause the various kind of female diseases mentioned above. These diseases not just effect on the reproduction but also impaired the entire women health.

CONCLUSION

Hypothyroidism shows significant effects on female body, especially on their reproductive system. Hypothyroidism in women can cause major gynecological disorders by causing menstrual irregularities and ovulatory defects. This increases a demand of finding preventive as well as curative therapies for this disorder. Ayurvedic principles of *saman & sodhana* can give a evalutory effects towards the management of this disease but first of all we need to understand the disease pathology in the terms of ayurvedic principles of *dosha- dushya samurchana*. Here we can put a effort on analyzing the effect of hypothyroidism on female reproductive system according to Ayurveda. Here we analyze that *Kapha* and *Vata vridhi* affects the *rasa dhatu* so that *updhatu* of *rasa* becomes defected and presentation of various gynecological symptoms occurs. Thus we can say that hypothyroidism severally affects the female reproductive system.

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