

Study on menstrual and fertility related problems among hypothyroid women

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Thyroid is an endocrine gland located below the larynx. The principal thyroid hormones are thyroxine (T_4) and tri-iodothyroxine (T_3). The current study was carried out to investigate the menstrual and fertility problems among hypothyroid women. Out of 28 hypothyroid women (22.22%) subjects had suffered from complications related to pregnancy like miscarriages, 3.57 per cent hypothyroid females suffered from infertility and 44.44 per cent hypothyroid subjects complained irregular and painful menstruation. While among normal female subjects 28.57 per cent females reported irregular and painful menstrual cycle. Significant positive correlation of menstrual and fertility related problems was found with hypothyroidism.

Key Words : Hypothyroidism, Miscarriages, Menstrual problems, Irregularities

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Thyroid disease is one of the chronic non-communicable disease affecting women more than the male population. Thyroid is the one of the most important and sensitive endocrine gland as it easily responds to stress and stimuli and plays a pivotal role in tissue metabolism and development. The low and high secretion of hormone cause thyroid disorder, include hypothyroidism. Throughout the life-cycle an individual's ability to alter synthesis, secretion or turnover of thyroid hormones in response to changes in nutrient intake and/or ambient temperature has a large impact on heat production and body composition.

Hypothyroidism is defined as a deficiency of both T_3 and T_4 resulting in decreased thyroid activity. Biochemically decrease in T_3 and T_4 concentration leads to hyper secretion of pituitary TSH and an amplified increase in serum TSH levels. It has long been recognized that thyroid dysfunction

may have profound effects on the female reproductive system. A relationship between the thyroid gland and the gonads is suggested by the far more frequent occurrence of thyroid disorders in women than in men and by the common appearance of goiter during puberty, pregnancy and the menopause (Maruna, 2006). Thyroid disorders are ten times more common in women than in men (Marieb *et al.*, 2010). While activity of the thyroid is closely linked with the process of ovarian maturation, the thyroid gland is itself dependent on direct and indirect stimuli from the ovary to discharge its own function.

The study selected 133 female subjects samples of age between 20 to 65 years by purposive sampling from Haldwani city, Nainital district (Uttarakhand). The study was carried out from the month of June to November 2013. The subjects mainly belonged to middle income group. To confirm the subjects thyroid status venous blood samples of the subjects were collected from their localities by the lab technician and were evaluated for thyroid hormone profile. A professional from "Thyrocare" (Rudrapur, U.S.Nagar centre) was administered to collect the blood samples. About 4 ml blood was collected from each subject and the samples were sent for examination to the "Thyrocare Laboratory Mumbai". Total

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Table 1 : Correlation between hypothyroidism, menstrual and fertility related problems

r value	Irregular and painful periods	Miscarriages	Infertility	Female sex	Correlation comparison (p)
Hypothyroidism	0.309**	0.421**	0.06ns	0.194**	**p>0.01 * p>0.05

Triiodothyronine and Total Thyroxin levels were examined via “Competitive Chemi Luminescent Immuno Assay” and Thyroid Stimulating Hormone (TSH) via ‘Ultra Sensitive Sandwich Chemi Luminescent Immuno Assay’. A well structured performa was prepared in accordance with the methodological procedure keeping in view the objectives of the investigation. The Performa was pretested initially, based on the responses obtained and difficulties realized, suitable amendments were made to make it more functional. Information related to pregnancy was also taken like the age at first and last pregnancy, and also the total number of pregnancies, under this information about the total number of live and still births was also taken. Information on pattern and irregularity of menstrual cycle was also recorded.

The data was collected with the help of interview schedule by paying visits to the study area and the responses were obtained on variables to meet the requirements of the study.

Out of total 133 female subjects, 28 were found to be hypothyroid on the basis of thyroid profile *i.e.* TSH value ranged from 5.5 to 29.5 uIU/ml (Normal value of TSH 0.5-4.5 uIU/ml). In a present study out of 133 female subjects, 84.12 per cent were married and 15.78 per cent were unmarried. Among married subjects, 24.10 per cent and 4.76 per cent unmarried were suffering from hypothyroidism. Of these women found to be suffering from hypothyroidism 22.22 per cent subjects had suffered from complications related to pregnancy like miscarriages. Out of these subjects, 2 subjects were diagnosed with hypothyroidism after the birth of their first child and were not able to conceive after that. These hypothyroid female subjects suffered from miscarriages which ranged from 1-5 in number and 3.57 per cent female suffered from infertility among hypothyroid female subjects group. Among hypothyroid subjects 46.42 per cent females complained irregular and painful menstruation.

Out of the remaining one hundred five normal female respondents, 80.95 per cent were married and 19.04 per cent were unmarried. Among normal married subjects 17.64 per cent reported miscarriages and none were found to be infertile while 28.57 per cent females reported irregular and painful menstrual cycle (Fig. 1).

In a research presented at the Endocrine Society 94 Annula Meeting, it was found that in women with even mild thyroid dysfunction during early pregnancy, rates for miscarriages are double those of women with normal levels, and the risk for stillbirth is as much as 7 times greater (Endocrine Society, 2012).

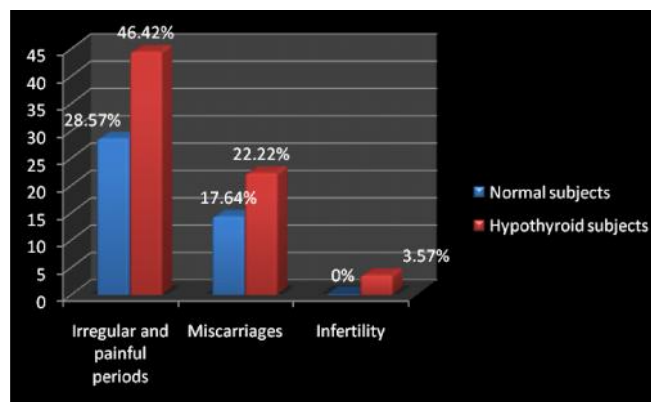


Fig. 1 : Menstrual and fertility related problems among normal and hypothyroid females

Significant positive correlation of irregular and painful periods and miscarriages was found with hypothyroidism ($p < 0.001$) (Table 1). Hypothyroid disease found to be significantly positively associated with hypothyroidism. Therefore, a chance of occurrence of hypothyroidism among female sex is more as compared to male sex. Similar findings were observed by Kakuno *et al.* (2010); Lahiri *et al.* (1996); Mukherjee and Gosh (1985) and Singh *et al.* (1990).

Conclusion :

Thyroid function tests, must be done in women presenting with menstrual irregularities and fertility related problems and also in those presenting with fatigue, obesity, lethargy in addition to infertility, luteal phase defects, delayed puberty and recurrent abortions. Also those presenting with thyroid dysfunction must be screened for menstrual disorders. Present study detected higher percentage of hypothyroid female subjects with menstrual irregular, infertility and fertility related issues like miscarriages etc. Hence the study concluded that women having any kind of fertility and reproductive system related problems must go for thyroid hormone screening.

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