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A Descriptive Study to Assess the Prevalence of Hypothyroidism and Associated Factors among Antenatal Mothers at Selected Hospitals of Bagalkot

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Abstract:-

Aims: The aims of this study are as follows: (1) To assess the prevalence of hypothyroidism among antenatal mothers. (2) To find out the factors associated with Hypothyroidism among antenatal mothers and (3) To find the association between the prevalence of hypothyroidism and socio-demographic factors with their selected socio-demographic variables.

Materials and Methods: Study approach- This was a descriptive survey and follows the study design as cross sectional descriptive research. The population involved in this study was antenatal mothers visiting various Hospitals of Bagalkot district. Samples are antenatal mothers visiting antenatal department of HSK Hospital and Research Centre, Bagalkot. Sample size is 100 (Total) antenatal mothers were included in the study. Further data were collected by structured questionnaire.

Results: After data collection, the data are organized and analyzed with the help of mean, median and percentage. A total of 100 antenatal mothers were included in the study 44% antenatal mothers had TSH values more than between 4-6 µIU/ml, among these 20 antenatal mothers had TSH value above 5.50 µIU/ml and were diagnosed with hypothyroidism during pregnancy. 80% of antenatal mothers were found euthyroid during pregnancy and 20% of antenatal mothers having prevalence of hypothyroidism during pregnancy.

Conclusion: After thorough analysis of the data, researcher concluded that there is prevalence of hypothyroidism (20%) among antenatal mothers at HSK Hospital and Research centre of Bagalkot, Karnataka. This study recommends that early screening of hypothyroidism may be desirable in our country, in early identification of hypothyroidism in pregnancy.

Keywords: *Prevalence, Hypothyroidism, Associated Factors, Antenatal Mothers, Thyroid Stimulating Hormone (TSH).*

I. INTRODUCTION

Turning into a mother is perhaps the most energizing occasions in a lady's life. Finding that a ladies is pregnant can be quite possibly the most elevating and pivotal occasions in a couples life. When women become pregnant she undergoes many physiological changes and endocrine disorders are the major changes in women in pregnancy. Major endocrine disorder that a women faces during pregnancy includes gestational diabetes mellitus, thyroid, parathyroid, adrenal and pituitary disorders.[1]

Among the physiological changes taking place during pregnancy the changes taking place in the thyroid gland make women more prone to various thyroid disorders. Thyroid disorder is common among all endocrine diseases in India. It is mainly classified into two: Hypothyroidism and Hyperthyroidism. Hypothyroidism is the under activity of the thyroid gland. Over secretion of thyroid hormone which accelerate many body functions, causing a hyper metabolic state known as hyperthyroidism.[2]

Immune system thyroiditis is the commonest reason for hypothyroidism during pregnancy. Other causes include

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radioiodine ablation of thyroid while treating hyperthyroidism or thyroid cancer, surgery of the thyroid tumours and drugs like rifampicin and phenytoin which accelerate thyroid metabolism.[3] The prevalnce of the individual parts of the disorders changes among population. Genetic background, diet, levels of physical activity, age and sex structure, levels of over and under nutrition all influences the prevalence.[4]

The foetus starts to produce thyroid hormones from 8-10 weeks of gestation. The maternal thyroid hormones transferred through placenta are main sources for foetal growth and development. Low thyroid activity also affects growing foetus causing infra uterine death, growth retardation, congenital anomalies and hypothyroidism.[5]

Mothers with hypothyroidism have diminished fertility rate, regardless of whether they imagine, danger of early termination is expanded, and danger of gestational hypertension, iron deficiency, unexpectedness placenta and blues discharge is expanded.[6]

The prevalence of hypothyroidism is 13.13%, majority being subclinical in pregnant women during the first trimester from India and Karnataka (Bangalore) 7.8% in 2016.[12]According to research reports, prevalence of hypothyroidism in Gulbarga, Karnataka is 9% (2014). In 11 cities in 9 states in India prevalence of hypothyroidism is 13.3% (2016). In Delhi, in India prevalence of hypothyroidism is 14.3% (2013).[7]

A prospective observational study was conducted for two years between 2013 to 2015, at a rural health center of Dr. Somervell Memorial Medical College, Karakonam, Kerala. The prevalence of thyroid disorders during pregnancy was 10.8% with hypothyroidism being 9.2%, out of which 8.5% were subclinical hypothyroidism and 0.7% was overt hypothyroidism. On assessing the risk factors for developing thyroid dysfunction in pregnancy, increases in incidence were seen with maternal age and increasing prevalence of hypothyroidism in pregnancy recommending a need for universal screening for all pregnant women in the first trimester itself.[8]

All the above literatures show that there is high prevalence and many associated factors of hypothyroidism among pregnant mothers. Hence the researcher is interested to study the prevalence and associated factors of hypothyroidism during pregnancy in Bagalkot.

Aims

The aims of this study are as follows:

1. To assess the prevalence of hypothyroidism and associated factors among antenatal mothers.
2. To find out the factors associated with hypothyroidism among antenatal mothers.
3. To find the association between prevalence of hypothyroidism and associated factors among antenatal mothers and selected socio-demographic variables.

II. MATERIALS AND METHODS

The present study was conducted on a descriptive survey approach with cross sectional descriptive research design was used for this study. The target population is antenatal mothers visiting various Hospitals of Bagalkot district. Accessible population is antenatal mothers visiting antenatal department of HSK Hospital and research center of Bagalkot was selected by convenient sampling techniques and 100 antenatal mothers were selected. The data were collected structured questionnaire. Data analysis and interpretation were performed using descriptive such as frequency distribution, mean, median, percentage, and inferential statistics such as chi-square.

III. RESULTS

Section I: Description socio-demographic characteristic.

Percentage-wise distribution of antenatal mothers according to their age reveals that majority 59% of antenatal mothers were in the age group of 21-25 years.

Percentage distribution of mothers according to their type of family reveals that majority 55% of antenatal mothers were from nuclear family.

Percentage distribution of antenatal mothers according to their religion depicts that majority 71% of antenatal mothers were belongs to Hindu.

Percentage distribution of antenatal mothers according to their education reveals that majority (34%) of antenatal mothers under the study were completed their secondary education.

Percentage distribution of antenatal mothers according to their area of residence reveals that majority (54%) of antenatal mothers under the study were from urban area.

Percentage distribution of antenatal mothers according to their family monthly income reveals that the majority of antenatal mothers (50%) under this study had family income between Rs 16000-Rs 20000.

Percentage distribution of antenatal mothers according to their occupation reveals that majority (45%) of antenatal mothers under the study were belong to the private employee.

Percentage distribution of antenatal mothers according to their used iodized salt reveals that majority (78%) of antenatal mothers under the study were used iodised salt.

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Percentage distribution of antenatal mothers according to their dietary pattern reveals that majority (57%) of antenatal mothers under the study were dietary pattern is mixed diet.

Percentage distribution of antenatal mothers according to their age at menarche reveals that majority (46%) of antenatal mothers under the study were have attended menarche at the age, of 15 years.

Percentage distribution of antenatal mothers according to their age at marriage reveals that majority (38%) of antenatal mothers under the study were married in the age at 19 years.

Percentage distribution of antenatal mothers according to their relative marriage reveals that majority (77%) of antenatal mothers under the study were not married within relatives.

Percentage distribution of antenatal mothers according to their living children reveals that higher percentage (67%) of antenatal mothers is having one children.

Percentage wise distribution of antenatal mothers according to their menstrual reveals that majority 77% of antenatal mothers were having regular menstrual cycle.

Percentage wise distribution of antenatal mothers according to their parity reveals that majority 60% of antenatal mothers were having one parity.

Percentage wise distribution of antenatal mothers according to their number of time conceived depicts that majority 60% of antenatal mothers were having two times conceived.

Percentage wise distribution of antenatal mothers according to their miscarriage reveals that majority 92% of antenatal mothers were having no history of miscarriage.

Percentage wise distribution of antenatal mothers according to their immune-disease reveals that majority 100% of antenatal mothers were not having immune-diseases.

Percentage wise distribution of antenatal mothers according to their history of PPH depicts that majority 97% of antenatal mothers was not having history of PPH.

Percentages wise distribution of antenatal mothers according to their history of hypertension depicts that majority 64% of antenatal mothers were not having hypertension.

Percentage wise distribution of antenatal mothers according to their hypothyroidism diagnosed before pregnancy reveals that majority 100% of antenatal mothers were with no diagnosis hypothyroidism before pregnancy.

Section II: Description of prevalence of hypo-thyroidism and related factors.

Part 1: Description of prevalence of hypothyroidism.

Prevalence of hypothyroidism during pregnancy was 20% among antenatal mothers at HSK hospital of Bagalkot. 80% of antenatal mothers were euthyroid during pregnancy.[Table 1].

Part 2: Frequency and percentage distribution of TSH level.

Percentage distribution of samples according to their TSH value majority of samples were having 52% i.e TSH level ranging between 2-4 µIU/ml, 44% of antenatal mothers were having TSH level range between 4-6 µIU/ml and lowest of 4% of antenatal mothers were having TSH level 1-2 µIU/ml.[Table 2].

Part 3: Frequency and percentage distribution of symptoms related to pregnancy in relation to hypothyroidism.

Out of 100 mothers 65% of antenatal mothers have experienced tiredness during antenatal period, and symptoms like weakness 60%, 34% constipation, muscle cramps 33%, hair loss 29%, sleep disturbance 20%, cold intolerance 18%, swelling of face 15, dry and itchy skin 13%, and hoarseness of voice 13%.

Section III: Frequency and percentage distribution of antenatal mothers according to their consumption of medication in hypothyroidism.

Percentage distribution of consumption of medication in hypothyroidism reveals that majorities 80% of antenatal mothers were not consuming any medication and lowest 20% of antenatal mothers were consuming medications during pregnancy.

Section IV: Association between socio-demographic factors and hypothyroidism.

Chi-square test is used to find association between socio-demographic factors and hypothyroidism. The test results reveals that the calculated chi-square value for the socio-demographic variables like age, type of family, religion, education, residence, family monthly income, occupation, use of iodized salt, dietary pattern, family hypothyroidism, age at menarche, age at marriage, relative marriage, living children, menstrual cycle, parity, number of time conceived, miscarriage, history of PPH and Hypertension are 4.501, 0.253, 1.883, 4.253, 1.973, 2.794, 1.599, 0.058, 0.162, 0.306, 0.0977, 1.32, 0.903, 0.983, 0.692, 2.722, 3.149, 1.664, 0.773 and 1.813. The calculated chi-square value is lesser than chi-square table values. This indicates there was no significant association found between the socio-demographical variables with hypothyroidism. $P<0.05$. [Table 3]

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Table no 1: Prevalence of hypothyroidism among antenatal mothers.
N=100

SL. NO	PREVALENCE OF HYPOTHYROIDISM.	Frequency	Percentage
1	Hypothyroidism during pregnancy	20	20%
2	Euthyroid during pregnancy	80	80%
	TOTAL	**100**	**100%**

Table no 2: Frequency and percentage wise distribution of antenatal mother According to their TSH level.
N=100

SL. NO	RANGE	FREQUENCY	PERCENTAGE
1	1-2 µIU/ml	4	4%
2	2-4 µIU/ml	52	52%
3	4-6 µIU/ml	44	44%
TOTAL		**100**	**100%**

Table no 3: Association between socio-demographic factors and Hypothyroidism. N=100

Sl. No	Socio-demographic factors	Chi-square value	DF	P value	Table value	Level of significance	Association
1	Age	4.501	9	0.875	16.92	0.05	**NS**
2	type of family	0.253	1	0.615	3.84	0.05	**NS**
3	Religion	1.883	2	0.390	5.99	0.05	**NS**
4	Education	4.253	4	0.373	9.49	0.05	**NS**
5	Residence	1.973	1	0.160	3.84	0.05	**NS**
6	Family monthly income in rupees	2.794	3	0.425	7.81	0.05	**NS**
7	Occupation	1.599	3	0.660	7.81	0.05	**NS**
8	Use of iodized salt	0.058	1	0.809	3.84	0.05	**NS**
9	Dietary pattern	0.162	1	0.687	3.84	0.05	**NS**
10	Family hypothyroidism	0.306	1	0.580	3.84	0.05	**NS**
11	Age at menarche	0.0977	1	0.754	3.84	0.05	**NS**
12	Age at marriage	1.32	2	0.341	5.99	0.05	**NS**
13	Relative Married	0.903	1	0.342	3.84	0.05	**NS**
14	Living children	0.983	3	0.805	7.81	0.05	**NS**
15	Menstrual cycle	0.692	1	0.406	3.84	0.05	**NS**
16	Parity	2.722	3	0.436	7.81	0.05	**NS**
17	Number of time conceived	3.149	3	0.369	7.81	0.05	**NS**
18	Miscarriage	1.664	1	0.197	3.84	0.05	**NS**
20	History of PPH	0.773	1	0.379	3.84	0.05	**NS**
21	Hypertension	1.813	1	0.178	3.84	0.05	**NS**

IV. DISCUSSION

After reviewing many studies related to antenatal mothers regarding prevalence of hypothyroidism and associated factors. And it has influenced me to take up the present study.

A cross sectional multicentre study conducted at secondary and tertiary public hospitals in 11 cities in India on May-June 2016 enrolling 2599 pregnant women. Data was collected using a cut of Thyroid Stimulating Hormone level of 4.5mIU/ml. The anti-pyro-peroxidase anti-bodies were positive in 20.74% of every pregnant lady (n=613), while 40% (n=155) of hypothyroidism pregnant mother were positive to anti-thyro-peroxidase anti-bodies. The study concludes that there is high prevalence of hypothyroidism (13.13%) majority being subclinical in pregnant women in first trimester.[9]

A cross sectional study was carried in Belgaum district, Karnataka to find out the prevalence of goiter in a rural community in 2 villages (Handiganur and Gundwad). Total 950 subjects were examined 334 were males and 616 subjects females. High prevalence among females was attributable to continued demand for pregnancy and child birth. Hence

females aged 10-49years are associated with high prevalence of goiter. The study concludes that prevalence of goiter was relatively high.[10]

V. CONCLUSION

After thorough analysis of the data, researcher concluded that there is prevalence of hypothyroidism (20%) among antenatal mothers at HSK Hospital and Research centre of Bagalkot, Karnataka. This study recommends that early screening of hypothyroidism may be desirable in our country, in early identification of hypothyroidism in pregnancy.

RECOMMENDATIONS

- ✓ A similar study can be conducted in government set up where TSH screening is not mandatory in the early trimester of pregnancy.
- ✓ Early identification and treatment can be done by the obstetrician.
- ✓ Similar study can be conducted in large scale.

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