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Research Article

**THYROID PROFILE: A COMPARATIVE STUDY BETWEEN
PRE-ECLAMPTIC AND NON-ECLAMPTIC WOMEN**Mehwish Memon¹, Mahak Memon², Khadim Hussain³, Momna Khan⁴, Faisal Irshad⁵,
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Article Received: August 2019**Accepted:** September 2019**Published:** October 2019**Abstract:**

This Case-control study was conducted at clinical laboratory in Isra University Hospital and LUMHS Hospital Hyderabad from January 2015 to June 2015 on 45 healthy pregnant women as group-I (control) and 45 pre-eclamptic patients as group-II (cases). The purpose behind was to evaluate serum thyroid profile in blood samples of healthy pregnant women and pre-eclamptic patients and to determine the possible role of thyroid profile in patients of pre-eclampsia. After consent and biodata, blood samples for serum thyroxin T₄ Serum tri-iodothyronine T₃ and TSH (serum thyroid stimulating) were collected from both cases and controls and analyzed at Isra Research lab. There was significant difference between the serum TSH levels among the two groups p-0.0001 while no significant difference was observed in serum T₃ and T₄ levels among pre-eclamptic and non-pre-eclamptic women p-0.58 and 0.37 respectively.

Conclusion: Serum thyroid stimulating hormone (TSH) was raised in pre-eclamptic women as compared to non-eclamptic women, while non-significant difference exists in serum T₃ and T₄ levels between the two.

Key Words: Pre-eclampsia, T₃, T₄, TSH, Pregnancy.

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INTRODUCTION:

Preeclampsia as well as gestational hypertension is responsible for maternal morbidity and mortality as a major cause and there are many predictive tests [1]. PGF (Placental growth factor) along with PAPP-A (pregnancy-associated plasma protein A) are well established biomarkers for diagnosis of pre-eclampsia at early stages and Fetal Medicine Foundation also recommend these tests with a predictive value of 65% [2,3]. Preeclampsia defined as blood pressure (140/90 mmHg or above) on 2 separate occasions along with proteinuria, at 20 weeks or above of gestational period, it badly affects 5% -8% pregnancies resulting into complications [4]. It is assumed that pregnancy is associated with raised thyroxine (T4) and in pre-eclampsia thyroid stimulating hormone (TSH) is also reported to rise [5]. Hyperthyroidism has been listed as one of the causes of high blood pressure. In pre-eclampsia, there is a failure of estrogen production, resulting into placental dysfunction, lowering of TBG, T3 and T4 along with growth retardation of fetus[6,7]. The published reports about the relationship between thyroid functions and complicated pregnancies showed that 5% to 15% of pregnant women experience thyroid abnormalities[8,9]. Thyroid dysfunctions during pregnancy result in worse maternal health issues like anemia in pregnancy, pre-eclampsia, postpartum hemorrhage and worse fetal effects such as premature births [10]. Based on these data, present study was conducted to evaluate serum thyroid profile in blood samples of healthy pregnant women and pre-eclamptic patients and to determine the possible role

of thyroid in patients of pre-eclampsia. Hope this work will facilitate the physician, patient and research communities in multiple ways.

METHODOLOGY:

The present case control study was carried out at department of biochemistry, Isra University Hyderabad. A sample of 90 subjects was divided into 2 groups i.e, group-I (control) n=45 and group-II (cases) n=45. Study population was selected through non-probability purpose sampling according to inclusion and exclusion criteria. Written informed consent was obtained and patients were assigned their study numbers. 3.0ml of blood sample was collected from antecubital vein from each subject. Data was analyzed by using SPSS 21.0 keeping P value 0.05 as significance level.

RESULTS:

The mean TSH level in group I (the control) was 1.64 ± 0.51 with 1.00 as minimum and 2.75 as maximum while mean TSH level in group II (Cases) was 17.24 ± 6.23 6.25 as minimum while as 31.33 as maximum. There was a significant statistical difference with a p- value of 0.0001. Mean tri-iodothyronine T3 was 1.56 ± 0.25 in group I ranging from 1.17 to 2.11 whereas it was 1.82 ± 0.23 in group-II range being 1.30 - 2.15 in this group p=0.58 that was not statistically significant. The thyroxin (T4) was 10.55 ± 1.99 in group I while 10.89 ± 1.65 in group II with no statistically significant difference at p- value 0.37 (Table 1).

Table 1: Comparison between two study groups using t-test

S. No	Parameters	Group-I N=45	Group-II N=45	p -value
1.	TSH	1.64 ± 0.51 (1.00 to 2.75)	17.24 ± 6.23 (6.25 to 31.33)	0.0001
2.	T4	10.55 ± 1.99 (7.06 to 14.22)	10.89 ± 1.65 (7.06 to 14.12)	0.37
3.	T3	1.56 ± 0.25 (1.17 to 2.11)	1.82 ± 0.23 (1.30 to 2.15)	0.58

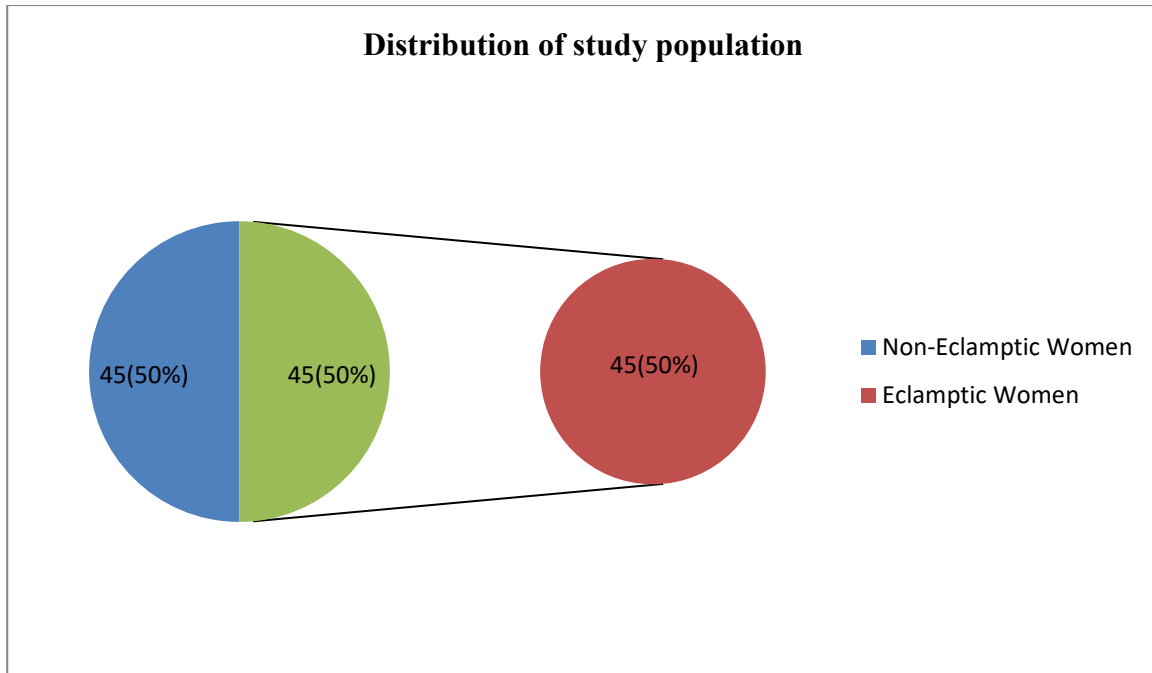


Figure.1 Pie chart of study population

DISCUSSION:

Based on data in the present study it was observed that there was raised serum thyroid stimulating hormone (TSH) with in significant rise in T3 and T4 levels in patients of pre-eclampsia. Our result was in accordance with previous work done by Anitha K satyanarayan et al (2015)[11] reporting the study on maternal thyroid profile of pre-eclamptic patients. The results of 60 subjects showed no difference in T3, T4 level in both groups but thyroid stimulating hormone (TSH) level is found raised in pre-eclamptic patients when compared to normal pregnancy .Asmehan A et al (2014) reported co-relation between thyroids related hormones and pre-eclampsia. The results of 120 subjects showed an increase level of serum TSH, T3, T4 in both mild and severe pre-eclamptic patients [12]. The results are inconsistent to the results of present study. Navarre Khadam et al (2012) reported the comparison of serum level of tri-iodothyronine (T3) thyroxine (T4) and thyroid stimulating hormone pregnancy. The results of 80 subjects showed no significant difference in view of T3, T4 and TSH [13]. The results are inconsistent to the results of the present study that shows significant elevation in serum TSH level. Our study was cross sectional in nature so we could not follow up the patients and controls to measure these parameters on term basis although we recommend it for other researchers to do so. Another weakness of the current work was to evaluate and compare the outcome results between the two groups and the effects of any intervention adopted.

CONCLUSION:

Serum thyroid stimulating hormone (TSH) was much elevated in pre-eclamptic patients as compared to non- eclamptic women while rise in tri-iodothyronine (T3) and thyroxine (T4) levels in cases and controls

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