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Research Article

Incidence and Prevalence of Pregnant Women with Gestational Diabetes Mellitus, Thyroid Disorders and Eclampsia in Khammam Region, Telangana State

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ABSTRACT

Objective: The aim of this study was to estimate the incidence and prevalence of Gestational Diabetes Mellitus (GDM), Thyroid dysfunction and Eclampsia in pregnant women prior to delivery. **Methods:** An observational retrospective study was conducted between December 2016 and June 2017 in a District Headquarters Hospital and two other tertiary antenatal care centers on pregnant women who delivered between 37 and 42 weeks of gestational age. The study participants data was collected prior delivery who were diagnosed as GDM with Random Blood Sugar levels ≥ 140 mg/dl, hyperthyroidism with ≤ 1.1 μ U/ml and hypothyroidism with ≥ 5.5 μ U/ml and Eclampsia in women who had a grand mal seizure with features of preeclampsia. **Results:** A total of 265 pregnant women was included whose information was sampled. A prevalence of 10.5% (n = 28) was identified with GDM, 77.7% (n = 206) was identified with Thyroid Disorders and 11.6% (n = 31) with Eclampsia who were categorized into rural and urban communities based on age groups. **Conclusion:** Ignorance regarding antenatal check-up, lack of transport and lack of early communication with a tertiary hospital play an important role for high incidence and prevalence of complications in pregnancy in Khammam region, Telangana State.

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INTRODUCTION

The 1990 WHO diagnostic criteria define Gestational Diabetes Mellitus (GDM) as carbohydrate intolerance resulting in hyperglycemia of variable severity with onset or first recognition during pregnancy [1]. The WHO 1999 criteria defined GDM by Fasting Plasma Glucose (FPG) level ≥ 7.0 mmol/l (126 mg/dl) or two hour plasma glucose levels after a 75 g oral glucose tolerance test (OGTT) ≥ 7.8 mmol/l (140 mg/dl). The Indian criteria for GDM use only the two hour criteria (DIPSI) [2]. The diagnosis of GDM is important because of the increased risk of adverse maternal and fetal-neonatal outcomes. In addition, GDM also confers a future risk of Type 2 diabetes to mothers and their fetuses [3]. The prevalence of GDM has been reported to be increasing worldwide within the last 20 years, but most noticeable in developing countries [4,5]. In India, the prevalence ranges from 6% to 9% in rural and 12 – 21% in urban regions, with most studies being done in either South or North India [6]. Thyroid dysfunction is the most frequent endocrine disorder in pregnant women. Overt hyperthyroidism and even subclinical hypothyroidism increase the risk of obstetric complications: miscarriage, fetal death, gestational hypertension, preterm birth and low birth weight. Maintaining a pregnant woman in a euthyroid state is a challenge for the thyroid gland during gestation because of an increased thyroid hormone demand and decreased iodine availability due to iodine transfer to the fetus and intensified iodine urinary losses induced by the increased renal glomerular filtration [8]. Eclampsia, the occurrence of a grand mal seizure in association with signs and symptoms of hypertension in

pregnancy (pre – eclampsia), remains a major women's health issue and an important cause of maternal and fetal morbidity [9]. The etiology of the condition may be genetic and treatment regimens differ [10]. In developing countries, the incidence of maternal death attributed to eclampsia remains high and has instead risen over the last decade [11].

This study was done to estimate and compare the prevalence of GDM, Thyroid dysfunction and Eclampsia in pregnant women based on age groups categorized under the Urban and Rural communities. It is envisaged that the results of this study will provide essential information regarding the need to treat and prevent the complications during pregnancy where there is also a challenge of changing dietary and lifestyle practices which are the risk factors.

METHODS:

Study Design, Region, Period: An observational retrospective study was conducted at different tertiary care hospitals from December 2016 to June 2017 in Khammam Region, Telangana State, India.

Study Population: The study participants were pregnant women attending antenatal care centers in government hospital and two other public health centers of Khammam region. The pregnant women who have fulfilled the inclusion criteria were enrolled in the study. Each participant was taken into consideration at the time of delivery during the data collection period.

Sample Size: A total number of 265 pregnant women were attended for delivery of which the participants were considered as sample who were diagnosed as GDM with Random Blood Sugar levels $\geq 140\text{mg/dl}$, hyperthyroidism with $\leq 1.1 \mu\text{IU/ml}$ and hypothyroidism with $\geq 5.5 \mu\text{IU/ml}$ and Eclampsia was diagnosed in women who had a grand mal seizure with features of preeclampsia.

Data Collection and Sampling Procedure: The information was obtained from the medical records of the patient from the hospitals which were recorded with Random Blood Sugar levels $\geq 140\text{mg/dl}$, Thyroid Stimulating Hormone (TSH) levels with $\leq 1.1 \mu\text{IU/ml}$ and $\geq 5.5 \mu\text{IU/ml}$ and women who had a grand mal seizure with features of preeclampsia of which age and geographical region were considered as Sociodemographic characteristics.

RESULTS AND DISCUSSION:

A total of 265 Pregnant women was included whose information was sampled, of which 10.5% (n = 28) were identified with Gestational Diabetes Mellitus, 77.7% (n = 206) were identified with Thyroid Disorders and 11.6% (n = 31) were identified with Eclampsia (Figure 1).

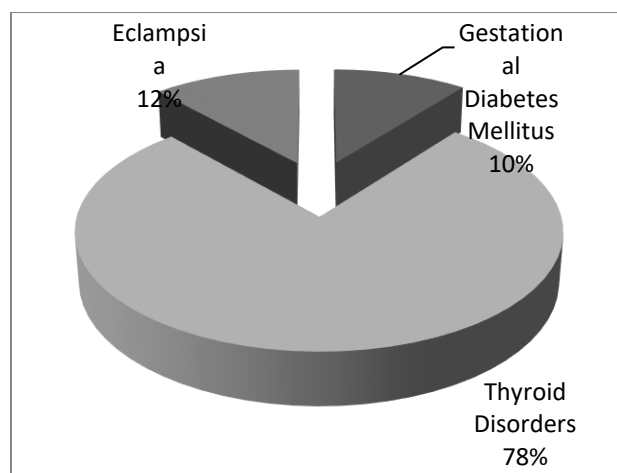


Figure 1: Prevalence of GDM, Thyroid Disorders and Eclampsia in Pregnant women

Table No. 2: Sociodemographic characteristics of pregnant women with Thyroid Disorders.

Variables	N	%
Thyroid Disorders	206	77.7
Urban region	98	47.5
17 – 20	12	12.2
21 – 23	26	26.5
24 – 30	33	33.6
28 - 30	17	17.3
> 30	10	10.2
Rural region	108	52.4
17 – 20	33	30.5
21 – 23	38	35.1
24 – 27	24	22.2
28 – 30	8	7.4
>30	5	4.6
Total	206	100

Table 3: Sociodemographic characteristics of pregnant women with Eclampsia.

Variables	N	%
Eclampsia	31	11.6
Urban region	8	25.8
17– 20	3	37.5
21– 23	3	37.5
24 – 27	1	12.5
28 – 30	-	-
> 30	1	12.5
Rural region	23	74.1
17 – 20	2	8.6
21 – 23	8	34.7
24 – 27	11	47.8
28 – 30	2	8.6
>30	-	-
Total	206	100

Prevalence of Gestational Diabetes Mellitus:

Of the women, 10.5% (n = 28) with Gestational Diabetes Mellitus in this study, the majority of the study participants, 64.2% (n = 18) were from Urban region and the remaining 35.7% (n = 10) were from rural region (Figure 2).

Table No. 1: Sociodemographic characteristics of pregnant women with GDM.

Variables	N	%
GDM	28	10.5
Urban region	18	64.2
17 – 20	2	11.1
21 – 23	2	11.1
24 – 27	7	38.8
28 – 30	2	11.1
> 30	5	27.7
Rural region	10	35.7
17 – 20	2	20
21 – 23	2	20
24 – 27	2	20
28 – 30	1	10
>30	3	30
Total	28	

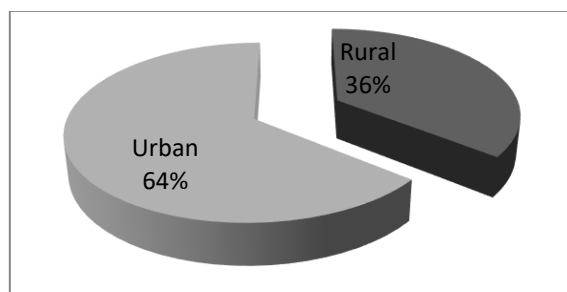


Figure 2: The prevalence of GDM categorized into geographical regions wise.

The pregnant women attending the antenatal care centers included in the study from various regions were categorized

based on age groups. Of the pregnant women from Urban regions, the age group with 17 – 20 were about 11.1% (n = 2), 21 – 23 were about 11.1% (n = 2), 24 – 27 were found to be high among all age groups about 38.8% (n = 7) and the other age groups 28 – 30 were about 11.1% (n = 2) and > 30 were found to be 27.2% (n = 5). Of the pregnant women from rural regions, the age group with 17 – 20 were about 20% (n = 2), 21 – 23

were about 20% (n = 2), 24 – 27 were about 20% (n = 2), 28 – 30 were about 10% (n = 1) and > 30 were found to be high among all age groups about 30% (n = 3) (Figure 3).

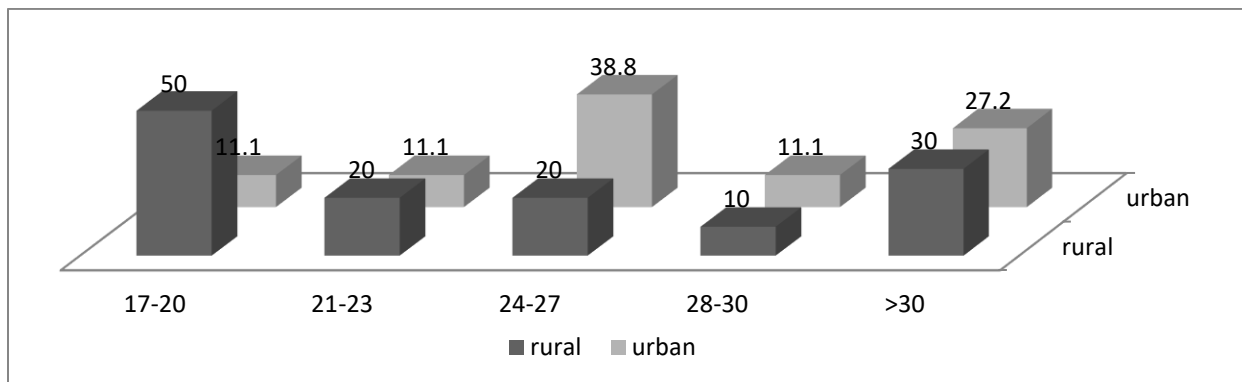


Figure 3: Prevalence of GDM categorized into age groups under geographical regions.

Prevalence of Thyroid Disorders:

Of the women, 77.7% (n = 206) with thyroid disorders in pregnancy in this study, the majority of the study

participants, 52.4% (n = 108) were from rural region and the remaining 47.5% (n = 98) were from Urban region (Figure 4).

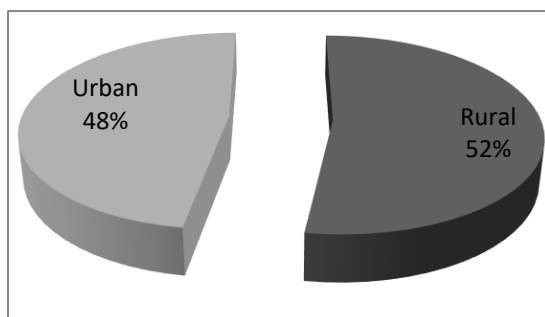


Figure 4: Prevalence of Thyroid Disorders categorized into geographical regions wise.

The pregnant women attending the antenatal care centers included in the study from various regions were categorized based on age groups. Of the pregnant women from Rural regions, the age group with 17 – 20 were about 30.5% (n = 33), 21 – 23 were found to be high among all age groups about 35.1% (n = 38) and the other age groups 24 – 27 were about 22.2% (n = 24), 28 – 30 were about 7.4% (n = 8) and > 30 were

found to be 4.6% (n = 5). Of the pregnant women from Urban regions, the age group with 17 – 20 were about 12.2% (n = 12), 21 – 23 were about 26.5% (n = 26), 24 – 27 were found to be high among all age groups about 33.6% (n = 33) and the other age groups 28 – 30 were about 17.3% (n = 17) and > 30 were found to be 10.2% (n = 10) (Figure 5).

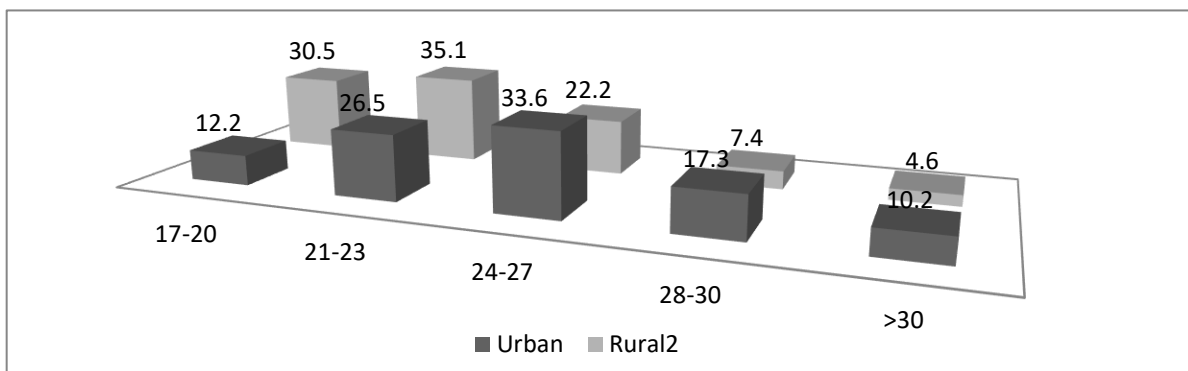


Figure 5: Prevalence of Thyroid Disorders categorized into age groups under geographical regions.

Prevalence of Eclampsia:

Of the women 11.6% (n = 31) with Eclampsia in this study, the majority of the study participants 74.1% (n = 23) were

from rural region and the remaining 25.8% (n = 8) were from Urban region (Figure 6).

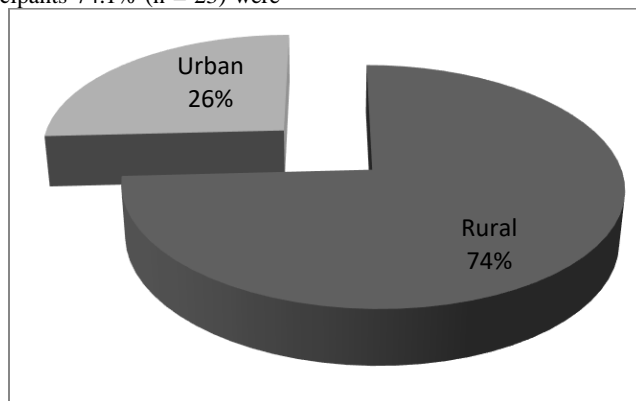


Figure 6: The prevalence of Eclampsia categorized into geographical regions wise.

The pregnant women attending the antenatal care centers included in the study from various regions were categorized based on age groups. Of the pregnant women from Rural regions, the age group with 17 – 20 were about 8.6% (n = 2), 21 – 23 were about 34.7% (n = 8), 24 – 27 were found to be high among all age groups about 47.8% (n = 11) and the other age groups 28 – 30 were about 8.6% (n = 2) and > 30 were

found to be none. Of the pregnant women from Urban regions, the age group with 17 – 20 and 21 – 23 were found to be high among all age groups about 37.5% (n = 3) and 37.5% (n = 3) respectively, and the other age groups with 24 – 27 were about 1% (n = 12.5), 28 – 30 were found to be none and > 30 were found to be 12.5% (n = 1) (Figure 7).

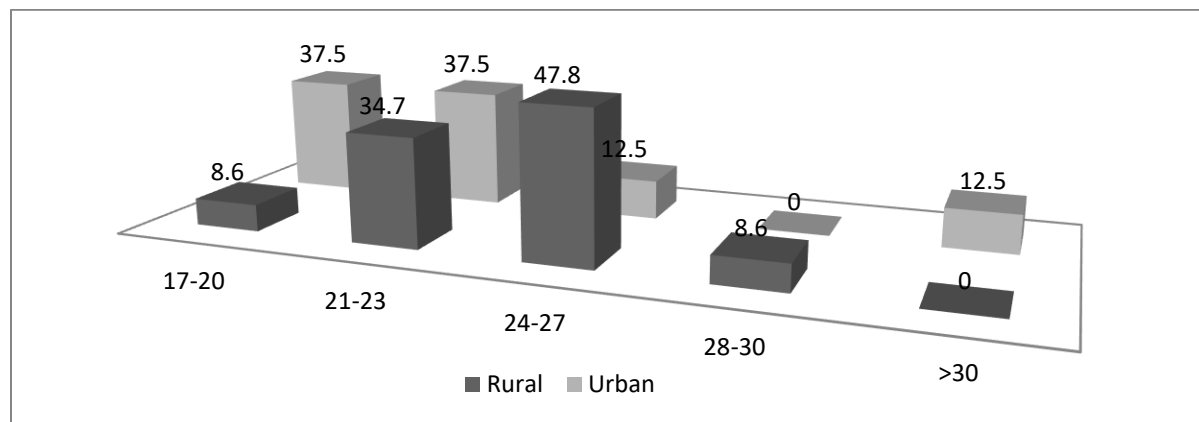


Figure 7: Prevalence of Eclampsia categorized into age groups under geographical regions.

CONCLUSION:

Ignorance regarding antenatal check up, lack of transport and lack of early communication with a tertiary hospital play an important role for high incidence and prevalence of affected by these disorders.

complications in pregnancy in Khammam region, Telangana State. Understanding incidence and prevalence of complications in pregnancy in this particular population will help in directing the appropriate resources for care of mother and children

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CONFLICT OF INTEREST:

None

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