



## Morbidity Pattern of Non-Communicable Diseases among Pregnant Women Attending A Tertiary Care Hospital in Kashmir Valley, India

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### Abstract

**Background:** *The study was conducted with the aim to observe the pattern of non-communicable diseases, mainly hypertension, diabetes mellitus, hypothyroidism and anemia in antenatal cases who attended outpatient department of a tertiary care hospital of district Srinagar, of Kashmir valley.*

**Methods:** *The study included 100 pregnant women with non-communicable diseases. Demographic profile, obstetric history, history of previous abortion, previous mode of delivery, family history of any non-communicable disease etc. were recorded by interview with the help of preformed proforma for a period of one month during June to July 2017.*

**Results:** *Among these patients 26% were having Hypertension, 25% Diabetes, 55% Hypothyroidism and 70% Anaemia. Among Hypertensive patients only 23% of the patients were having Hypertension before pregnancy, likewise 24% having Diabetes before pregnancy among Diabetic patients and 69% of Hypothyroid were having the diseases diagnosed before pregnancy.*

**Conclusions:** *The majority of non-communicable diseases were detected during the pregnancy, there is a need to focus on the screening tests for these diseases as this provides the opportunity to screen these iceberg diseases which become prominent during pregnancy as a result of physiological stress.*

**Keywords:** *Non-communicable diseases, pregnancy, tertiary care hospital.*

### Introduction

There has been a global morbidity pattern transition with increasing burden of non-communicable diseases like cardiovascular diseases, diabetes mellitus, cancers, chronic respiratory diseases.<sup>(1)</sup> Even in this part of the world there has been evidences of increase in non-communicable diseases<sup>(2)</sup>. These diseases are not only common in older ages but are also prevalent

in the young population including reproductive age groups and pregnancy<sup>(3)</sup>. They account for an extra burden on pregnant women in addition to complications arising from pregnancy. It is estimated that worldwide the maternal mortality ratio is about 216/100,000 live births,<sup>(4)</sup> and in India it is about 167/100,000, there has been a 44% decrease in maternal deaths worldwide from 1995-2015.<sup>(4)</sup> It has been made possible because

of the focus on the commonest direct causes of maternal mortality like antepartum and postpartum hemorrhages, eclampsia, sepsis, unsafe abortions and other complications related to labour like obstructed labour.<sup>(4)</sup> These account for about more than three fourth of the deaths. The remaining one fourth of the maternal deaths are due to indirect causes of pre-existing diseases or diseases aggravated by changes in physiology during pregnancy. Most important diseases include non-communicable diseases like cardiovascular diseases, anemia, neoplasms, mental disorders and some metabolic disorders like diabetes mellitus, thyroid dysfunctions. The pregnancy state can reveal underlying or undiagnosed diseases which otherwise may not have been diagnosed as physiological changes in pregnancy may serve as natural stress.<sup>(5)</sup> The obstetric transition focus more on these indirect causes.<sup>(6)</sup> It has been seen that proportion of deaths due to indirect causes have increased by 1% from 10 to 11%.<sup>(7)</sup> The present study was conducted to observe the pattern of non-communicable diseases, mainly hypertension, diabetes mellitus, hypothyroidism and anemia in antenatal cases who attended outpatient department of a tertiary care hospital of district Srinagar, of Kashmir valley.

### Methods

The present pilot study which is a part of a bigger study was conducted in the outpatient department Lal Ded Hospital Srinagar which is an associated tertiary care hospital of Government Medical College Srinagar, included 100 pregnant women with non-communicable diseases. The antenatal patients attending the outpatient clinic are distributed in ten cabins. One cabin was selected each day and patients were enrolled from that cabin for that day. The data was collected for a period of one month from June 2017 to July 2017. Only those pregnant women were included in the study who have been diagnosed any non-communicable diseases. The diagnoses were made either by the treating Gynecologist or General

Physician in the field from which they have been referred to the tertiary care hospital. Demographic profile like age, residence, age at marriage, obstetric history, history of previous abortion, previous mode of delivery, family history of any non-communicable disease etc. were recorded by interview with the help of preformed proforma and data for other variables like hemoglobin at first visit, blood group, Rh status and other investigations were taken from their antenatal registration cards. The participants were made aware of the study and written informed consent was taken from each participant. The patients are being followed up for the pregnancy outcome. The Statistical Package for the Social Sciences (SPSS) Version 23 and Excel 2016 was used for statistical analysis and data compilation. Ethical clearance was taken for the institutional ethical committee of Government Medical College Srinagar.

### Results

In this pilot study 72% of the pregnant women were from the summer capital city Srinagar followed by 16% from adjacent district Budgam, 5% from Pulwama district, 4% from Kupwara, 2% from Shopian and only 1% from Anantnag district. The mean age of the patients were  $29.55 \pm 4.07$  with minimum age of 20 years and maximum age of 38 years and the mean Gestational age were  $8.21 \pm 0.70$  months. 15% of the pregnant females were having age  $>35$  years. 46% of pregnant females were Gravida 1, 27% Gravida 2, 15% Gravida 3 and rest of higher Gravida upto Gravida 6. 55% of the pregnant females were Para 0, 26% Para1 and 17% Para 2. 77% pregnant females were having no history of abortion, 13% one abortion, 4% two abortions and 6% having previous history of three abortions. 55% of the pregnant females were Primi, 26% having one live child, 17% two live children and 2% were having three live children. 38% of the pregnant females were having previous history of LSCS and 7% of them had previous normal delivery. 30% of the pregnant females were

having blood group A, 44% B, 9% AB and 17% blood group O. 90% among them were Rh positive. The mean Haemoglobin at first visit which was in first trimester in 100% cases were  $10.5 \pm 1.64$ . The prevalence of anaemia among these pregnant females was 70%.

So far as our prime concern NCDs are concerned, 26% of the women were having Hypertension, 25% Diabetes and 55% Hypothyroidism. Among Hypertensive patients only 23% of the patients were having Hypertension before pregnancy, likewise 24% having Diabetes before pregnancy

among Diabetic patients and 69% of Hypothyroid were having the diseases diagnosed before pregnancy. 15% of the pregnant females were having family history of Hypertension, 7% of them having Hypertension of the mother, 2% father and 5% having history of hypertension of the both parents. 92% of the patients were having no family history of Diabetes, 3% were having history of Diabetes of mother, 2% father and 1% both parents. 72% of the pregnant females were having no family history of Hypothyroidism, 16% having Hypothyroidism of mother and 10% sister.

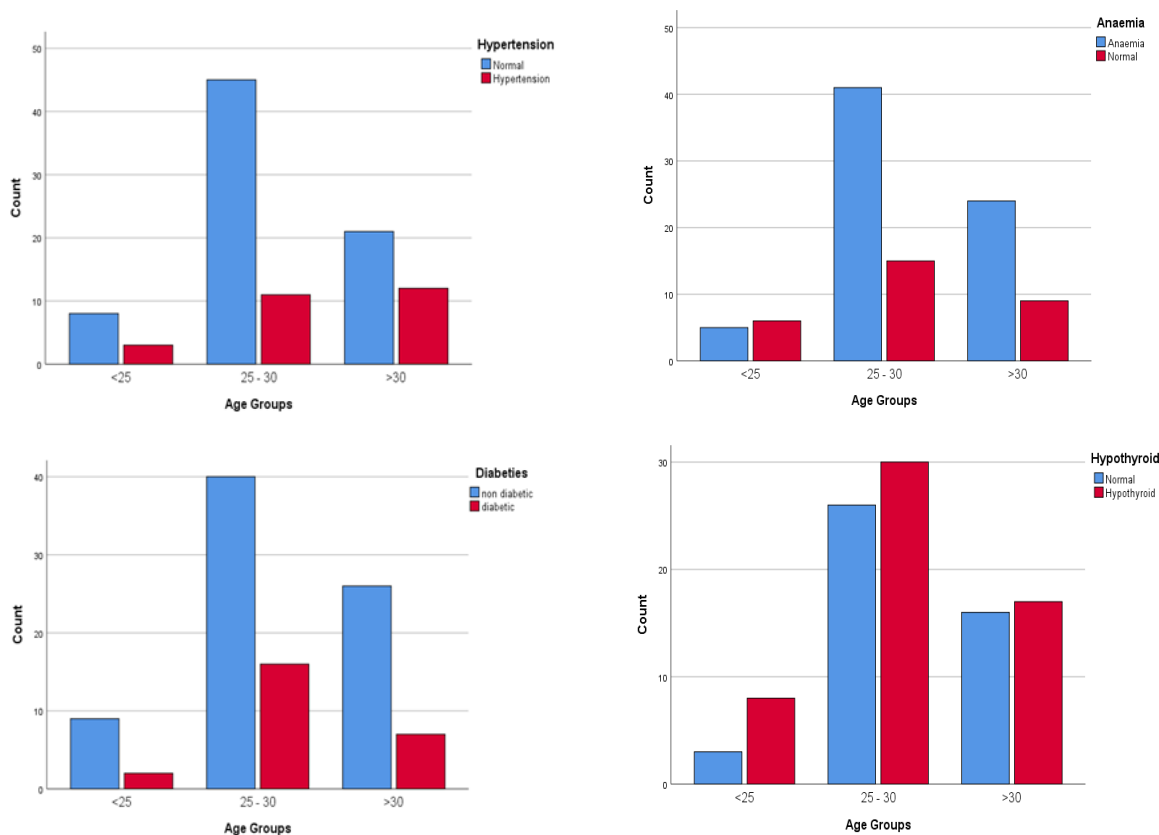


Figure 1: Bar charts showing distribution of NCDs in various age group

Table 1: Distribution of NCDS in Pregnancy in Age category

Age Category (Years)	<25 (n/%)	25-30 (n/%)	>30 (n/%)	Statistical Analysis
<b>Hypothyroidism</b>				
Normal	3 (27.3%)	26 (46.4%)	16 (48.5%)	p value <0.05
Hypothyroid	8 (72.7%)	30 (53.6%)	17 (51.5%)	
<b>Hypertension</b>				
Normal	8 (72.7%)	45 (80.4%)	21 (63.6%)	p value <0.07
Hypertensive	3 (27.3%)	11 (19.6%)	12 (36.4%)	
<b>Diabetes</b>				
Non- Diabetic	9 (81.8%)	40 (71.4%)	26 (78.8%)	p value <0.07
Diabetic	2 (18.2%)	16 (28.9%)	7 (21.2%)	
<b>Anaemia</b>				
Normal	6 (54.4%)	15 (26.8%)	9 (27.3%)	p value <0.04
Amaemic	5 (45.5%)	41 (73.2%)	24 (72.7%)	

### Discussion

The study showed that majority about 70% of the patients were from the capital city Srinagar followed by the nearer districts, and least 1% from the district Anantnag. The reason for the same is that there is a well-established maternity hospital in the said district. This indicates that there is a dire need to upgrade our peripheral hospitals to decrease the burden of the patients in tertiary care hospitals in Lal Ded hospital. The decreased load will in turn improve the quality of health care at the tertiary care hospital. Among the non-communicable disease, most common was hypothyroidism followed by hypertension and diabetes mellitus. There was higher percentage of hypothyroidism (55%) in our study, in contrast to the study conducted by Dharwal et al who found 13-14%<sup>(6)</sup>. This can be explained by the fact that there is high prevalence of hypothyroidism in this part of India, more in females as found by Bashir, Haamid et al<sup>(7)</sup> and Khan SMS et al<sup>(8)</sup>. This study revealed that 73% of hypertensive patients and 76% of diabetic patients were detected during the routine antenatal examination and investigation. This is because of the fact that pregnancy is a natural stress for some physiological changes and during this period the diseases iceberg is more prominent. Moreover, these routine investigations in pregnancy provides an opportunity for getting women screened for these ice berg diseases. We found almost equal percentages of patients with hypertension (26%) and diabetes (25%). The prevalence of these diseases in general population shows the same trend as Prevalence of gestational diabetes varies from 2.4 to 21 %<sup>(9)</sup>, that of hypertension in pregnancy is about 19-20%.<sup>(10)</sup>. Pregnancy induced hypertension is found in about 20% of pregnancies after 20 weeks of gestation. Rather RH et al found about 70% of the pregnant women were anemic according to WHO criteria (Hb< 10.5gm/l)<sup>(11)</sup>. Almost similar results were found by a study on pregnant women by Rasool Mehbooba et al<sup>(12)</sup>

### Conclusion

The findings of the study that hypothyroidism and anemia were most common among other non-communicable diseases in this part of world needs further studies for cause and responsible risk factors. The fact the majority of non-communicable diseases were detected during the pregnancy, there is a need to focus on the screening these diseases in general population. Low referrals from district hospital where there is a well-established maternity center shows that burden on tertiary care hospitals can be reduced by uplifting the other district hospitals.

### Limitations

The current study being the pilot study has less sample size and cross sectional nature of the study has to be kept in consideration. Moreover, it was a hospital based study so true prevalence of non-communicable diseases in pregnancy could not found out.

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**Conflict of interest:** None declared

**Ethical approval:** The study was approved by the ethical committee of Government Medical College Srinagar

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