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Assessment of Basic Nutritional Status and Awareness to Good Food Habits of Pregnant Women In A Semi Urban Indian Town- Kumbakonamurban Rural Epidemiological Study- Kures-3

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Abstract

Nutritional needs increase in pregnant women which should be consciously considered during pregnancy. But there are a lot of deficiencies in their food intake especially among our population. With an aim to identify the prevalent nutrition and awareness about dietary needs, this cross-sectional study was conducted in 265 pregnant patients. It was foundthe prevalence of anaemia was 46.8%. The mean haemoglobin was 9.75gm/dl. The prevalence of gestational diabetes mellitus was 3.8 %.while pregnancy induced hypertension was 4.9%.The awareness about adequate nutrition in a different new scale named suchitra scale was recorded and the dietary pattern was unsatisfactory in our study. Eighty percent of women did not take proper diet according to this scale.There is an urgent need for more serious community awareness programs to counter this growing health menace. Even though such studies are available, this is the first possible report of a nutritional problem in a peripheral private hospital of South India

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Keywords

Anaemia;
Gestational Diabetes Mellitus;
Pregnancy;
Nutrition.

Introduction

Pregnancy is a time when rapid and profound physiological changes take place from the time of conception till birth. Nutritional requirements increase during the time to maintain maternal metabolism while also supporting foetal growth and development.[1] Hence poor dietary intakes with deficiencies in key macronutrients and micronutrients can have a significant impact on pregnancy outcomes and the health of the neonate. Excessive intake of

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vitamin A also can affect the foetus. Supplemental intakeof folic acid both, preconceptionally and also during pregnancy has been shown to help reduce the development of neural tube defects. Anaemia and other nutritional deficiencies are common among Indian pregnant women. Insufficient and/or unbalanced nutrition during antenatal period may result in abortion, premature birth, stillbirth, physical abnormalities, andmental retardation; it may also cause a few problems for mothers like anaemia, osteomalacia, iodine deficiency, gestationaldiabetes (GD) and pre-eclampsia.[2,3] The Indian scenario is also alarming with poor nutritional status of pregnant women with around 74% being anaemic.[4] Hence knowing the magnitude of the nutritional problem like anaemia is essential to get better peripartum outcomes. Hence, in this study, an analysis of the incidence of anaemia in randomly chosen pregnant population of a semiurban town of South India was done.At the same time, a level of awareness among antenatal women by a separate suchitra scale on nutrition was also recorded.

Aims and Objectives

- To find out the level of awareness about nutritious diet and its value in pregnancy
- To find out the mean haemoglobin leveland the prevalence of anaemia of the sample pregnant population.
- To find out the prevalence of gestational diabetes mellitus
- To find out the prevalenceof pregnancy induced hypertension
- To find out the prevalence of any correlation with anaemia and pregnancy induced hypertension.
- To find out the level of awareness about nutritious diet and its value in pregnancy.

Methodology

After obtaining ethical committee approval (IRBSTH-103/2018 dated 23/09/2018) two hundred and sixty-fiveprimi gravidae women respondents reported to a private obstetrichospital were selected for the present clinical study in the Kumbakonam municipal town.As the study was done in a private set up, the cost factor of purchasing nutrient food did not arise. The study was done from October 2018 to November 2018. All antenatal cases were seen at approximate gestational age of 24 weeks. The present haemoglobin along with the haemoglobin from the antenatal card at three monthswas recorded. A level of less than 10 gm% was taken as anaemia. The weight at three and six months, the height, the average BMI at 6 months was noted. The mean age was also noted. The systolic and diastolic blood pressures were noted.Fasting plasma venous glucose (blood sugar) were taken at the age of three and six months.A single step test recommended by World Health Organization(WHO) for the diagnosis of GDM after giving a 75 gmglucose, through Oral Glucose Tolerance Test (OGTT) irrespective of the intake of last meal with a threshold valueof 2-hour Blood Sugar>140 mg/dL. The percentage of antenatal women with pregnancy induced hypertension was noted. A special four point scale, Suchitra scale, was formulated as an outcome of two decades of nutrition practice. A special questionnaire was framed and all pregnant patients were subjected to answer the same about the extra calorific needs and nutritional requirements. According to the answers, they were divided into four scales.

Scale 1

Very little knowledge about the need of extra nutritional needs of pregnant women. Routine and haphazard consumption of diet.

Scale 2

knowledge about extra calories and the need to take extra food but a little knowledge about nutrients and just taking additional food as calories.

Scale 3

knowledge about extra calories, nutrients present but not taking such diet.

Scale 4

knowledge about extra calories, nutrients present, a concept about its value in breast feeding and following the same dietary pattern.

With a town population of around 150000 and a possible target population of 3500 as antenatal patients as described above, the application of Qualtrix software in estimation of sample size for epidemiological studies was done. For a study to have 90% confidence level and a margin of error 5%, a sample size of 252 was found necessary. Hence a sample size of 265 was made in our study. Sampling

was simple continuous. All data were entered in an excel spread sheet and fed into the statistics software SPSS 20.0 for descriptive statistics and confidence intervals. A pearson correlation statistics was done when considered necessary.

Results

All the 265 parturients completed the study. There were no drop outs. The percentage of parturients with haemoglobin of less than 10 gm% was 46%. See Table 1. The mean haemoglobin at three months of gestation was 9.75 which dipped to 9.27 at six months. Even though physiological, this dip was not prevented by intake of hematinic drugs in our cases.

Table 1: showing percentage of parturients with different hemoglobin levels

Haemoglobin (Hb)	Percentage of patients
<10	46.8
10.0	22.3
11.0	21.8
12.0	3.6
13.0	2.9
14.0	0.8
>15	1.8
Total	100.0

Its to be noted from the table 2 that the mean weight increased satisfactorily in parturients in this study which is physiological. The mean age, and the body mass index (BMI) were found be normal considering Indian standards. The mean blood sugar was 75.58 mg% in the first trimester which increased to 82.97 mg% which is considered normal. Ten out of 265 participants were diagnosed as Gestational diabetes mellitus according to WHO criteria This accounts to around 3.8% of pregnancies. The mean age of pregnancy was 26.6 years which was slightly higher than the recommended.The attribute 'women's weight in sixth month'was having a weak positive relationship (pearson value of + 0.25,) with the variables namely blood pressure (sig. 2 tailed 0.001), sugar level in third month (sig. 2 tailed 0.001), sugar level in sixth month (pearson value 0.33 - sig. 2 tailed 0.001), Hence, this evidently proves that the increasing women's weight moderately corelated with increase of blood pressure, blood sugar values. The concerned Pearson correlation value is 0.241 with a p value of 0.001. The data set confirmed that the variables sugar level in third month (sig. 2 tailed 0.001), sugar level in sixth month (sig. 2 tailed 0.001), positively correlated with the variable 'blood pressure'. Therefore, the increase of blood pressurevalue among pregnant women was associated with increase of blood sugar values. The prevalence of gestational diabetes mellitus was 3.8%.while pregnancy induced hypertension was 4.9%. Regarding the Suchitra awareness scale, the scores revealed the majority of parturients were not aware of the dietary importance and nutritive value of many food items. See - Table – 3

Table 2: The mean demographic and biochemistry values were depicted in table 2

Sl. No	Variable	Mean Value±SD
1	Women's weight in Third month	62.36±9.2 Kg
2	Women's weight in sixth month	69.96±9.6 Kg
3	Height	155.43±10.8 cm
4	Systolic Blood pressure	128.92±13.8 mmHg
5	Age of the respondent	26.66±3.5 years
6	Blood Sugar level in third month	75.58±8.6 mg%
7	Blood Sugar level in sixth month	82.97±9.8 mg%
8	Hemoglobin in third month	9.75±1.2 gm%
9	Hemoglobin in sixth month	9.27±1.3 gm%
10	Body Mass Index	25.91±4.2

Table 3: Suchitra scale of awareness on nutrition

Scale score	Number	Percentage
1	101	38.1%
2	111	41.8%
3	32	12.1%
4	21	08%

The above results clearly indicate that awareness about an intake of adequate nutrition during pregnancy is deficient.

Discussion

In a study of prevalence of anemia in pregnancy in telengana state of India, Rajamouli *et al.,*[4] have found the incidence to be 58% which is slightly higher than our incidence of 46.8%. This may be due to the fact that our patients belonged to a semi private hospital set up. A lack of awareness about nutritious diet may be one of the contributing factor as shown in this study. They have also drawn the line of anaemia as less than 10 gm%. Another difference is our cases belonged to primigravidae which is more disturbing as regards to health status in the antenatal period. In a srilankan study by Adhikari *et al.,*[5] the incidence of anaemia is 25 % with 9 gm% as the cut off value which almost coincides with our results(26.6). But the mean value of haemoglobin was normal 11.7 where our values stood at 9.75.This study data is less dispersive which adds an extra significance value to the derived results.In yet another study[6] among low income group of pregnant patients, the incidence of anaemia was 33.9 %. Our study focused in a private set up, yet the prevalence of anaemia was very high. The prevalence of gestational diabetes mellitus was 3.8 %.while pregnancy induced hypertension was 4.9%.The incidence of gestational diabetes mellitus was found to be ranging from 2.5 to 13.5 % in rural India.7 This goes along with our studies. The deficiency in our conclusion is that we have not followed up later than 24 weeks. In an India study by Mehta *et al.,*[8] the prevalence of hypertension among pregnant women was found to be 6.9% (95% confidence interval (CI) = 5.4–8.7). Our study has less number of pregnancy induced hypertension. Regarding the nutrition awareness scale devised by Suchitra more than 80 % fell into the category of bad nutrition.(scales 1 and 2) This scale is simple to practice which is being followed by us for around two decades. Such nutrition scales have also been introduced and validated by us about nutrition knowledge in hypertension.[9] In a community based cross sectional study of around 660 parturients by Nana *et al.,*[10] the incidence of bad dietary practice among pregnant women in undeveloped country is 60.7%. But the yardstick was different. Here we changed and devised a new scale (Suchitra Scale) according to Indian conditions and we showed the dietary awareness and follow up was worse. This scale was designed by us for the needs of an Indian scenario after two decades of nutrition practice. The mean systolic blood pressure in our work is 128 while its 116 in a study by Wallis *et al.,*[11] The BMI and gain in weight[12] during the second trimester were according to other studies. There was no incidence of severe preeclampsia in our study probably because the gestational age in which data were collected. This is one time study and the methodology did not include any follow up of patents for additional morbidity especially in parturients with anaemia.Even though such studies are available, this is the first possible report of a nutritional problem in a peripheral private hospital of South India. The emphasis and uniqueness in this study is a possible health menace even in affluent parturients. We can probably infer that more than income it's the awareness which needs to be highlighted.

Conclusion

In a cross sectional community study of pregnant women in a semiurban town of south India, the prevalence of anaemia was 46.8%. The prevalence of gestational diabetes mellitus was 3.8%. while pregnancy induced hypertension was 4.9%. The BMI and weight gain were found normal. Eighty percent of antenatal mothers were not aware about having proper diet even though they can afford to get such diet. The study suggests more serious community awareness programs are needed to counter this growing ill health.

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Conflict of Interest
The authors do not have any conflict of interest.

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