

Association of anaemia with BMI in pregnancy in Konaseema Institute of Medical Sciences & RF, Amalapuram

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ABSTRACT

Background: During pregnancy, nutritional deficiencies continue to be a major issue that can lead to anemia. The present study aimed to determine anemia status and the relationship of BMI with Hb% in pregnant women in KIMS, Amalapuram.

Methodology: This was a hospital-based, cross-sectional study conducted among pregnant women of the age group (15-49 years) who attended Obstetrics & Gynaecology OPD of KIMS & RF, Amalapuram. BMI was calculated. weight before pregnancy was taken for BMI calculation. The level of hemoglobin was also measured. The study tool was collected in the face-to-face interview using a pre-designed, semi-structured questionnaire. SPSS software version 2020 was used for statistical analysis.

Results: Our study found that, the prevalence of underweight and anemia in pregnancy i.e. 11(28.9%) and 42.1% respectively. out of these 11(28.9%) underweight pregnant women, the majority of women had severe anemia 6(15.8%), followed by moderate anemia 3(7.9%) which showed statistically significant ($p= 0.002$).

Conclusion: The majority of pregnancies suffer from anemia with low BMI so, the findings highlighted the need to strengthen policy issues to focus on programs, such as preventing child marriage, retaining teenagers in school, educating teenage girls, and creating awareness on reproductive health issues.

Keywords: Prevalence, BMI- Body Mass Index, Anaemia.

Introduction

Pregnancy-related anemia is a major global health concern. If linked to dietary deficiencies, it continues to be a serious public health issue. Since the growing fetus ultimately depends on its mother for necessary nutrients to facilitate fetal organ development, skeletal growth, and appropriate physiological functioning, maternal nutrition is an essential part of prenatal care. The “World Health Organization (WHO)” considered/defines anemia among pregnant women as a hemoglobin level of less than 11 g/dL and anemia is considered severe when the

hemoglobin level during pregnancy is less than 7 g/L.¹ Body mass index (BMI), formerly known as the Quetelet index, is a metric used to assess an adult's nutritional status. It is calculated as the individual's weight in kilograms divided by their height in meters squared (kg/m²). Pregnancy problems like miscarriage, stillbirth, and recurrent miscarriages are more likely to occur in women with high body mass index (BMI). Additionally, gestational diabetes, a pregnancy complication marked by hypertension, symptoms of damage to another organ system (preeclampsia), usually to the kidneys and liver, heart issues, and sleep apnea. Women presenting with low BMI may have features in their history, such as certain mental health disorders, which means they should be referred for safeguarding as vulnerable adults.

Methodology

It was a hospital-based cross-sectional study. The study was conducted among pregnant women of the age group (15- 49 years) attending OBGY OPD at KIMS&RF, amalapuram for a period of 1-month duration (March 2024 -April 2024). After obtaining informed consent from participants, a face-to-face interview was conducted using a predefined, semi-structured questionnaire. Participants were asked about their pre-pregnancy weight, and height measurements were also taken for BMI calculation. Additionally, the hemoglobin value was acquired during their first-trimester exam to determine HB.

BMI in Asia and India is as follows:

BMI: > 24 kg/m² Overnutrition

BMI: 18.5 – 24 kg/m² Adequate nutrition

BMI: <18.5 kg/m² Undernutrition

●Ethical consideration: Institutional ethics committee approval was taken and informed consent was obtained.

●Data Analysis and Interpretation:- Data was entered using a Microsoft Excel 2016 spreadsheet. Summarization and analysis of data were carried out by using IBM SPSS Software version 20 (licensed). Descriptive Statistics: Frequency, Percentage. Inferential Statistics: Chi-square test.

RESULTS

Table- 1 Distribution of study subjects in relation to socio-demographic characteristics

Age	Frequency (38)	(%)
14- 19	6	15.8
20- 25	18	47.4
26- 35	14	36.8
Gravida		
Primi	21	55.3
Multi	17	44.7
BMI		

<18	11	28.9
18- 24	18	47.4
>24	9	23.7
HB Level		
< 7	7	18.4
7 - 11	9	23.7
>11	22	57.9

Out of a total of 38 pregnant women, the majority of women i.e. 18(47.4%) were between the age group of 20- 25 years. The mean age of pregnant women was 24.6 + 4.9. Of the study subjects, 18 (47.4%) were healthy and had a normal BMI, while 11 (28.9%) were undernourished. in our study, the majority of pregnant women have Anaemia i.e. 42.1%.

Table 2 showing Association of BMI with Anaemia in pregnant women

BMI levels	Hb levels (%)			Total	Chi-square	df	P value
	<7	7-11	>11				
<18.5 (Underweight)	6(15.8)	3(7.9)	2(5.3)	11(28.9)	16.58	4	0.002
18.5-24 (Healthy)	1(2.6)	5(13.2)	12(31.6)	18(47.4)			
>24 (Overweight)	0(0.0)	1(2.6)	0(0.0)	9(23.7)			
Total	7(18.4)	9(23.7)	7(18.4)	38(100)			

Table showing that, out of 11(28.9%) underweight pregnant women, the majority of women had severe anemia 6(15.8%), followed by moderate anemia 3(7.9%) which showed statistically significant ($p= 0.002$). And pregnant women with a BMI in the normal range most of them had not have anemia i.e. 12(31.6).

Discussion

Table 1 shows, the prevalence of Anaemia in pregnant women, i.e. 42.1%. The study conducted by Gabriela bencaiava et al² concluded that the prevalence of abnormal hemoglobin and abnormal iron status was 50.2% (236/470). Noha Morsy et al, study showed the prevalence of anemia was 91.25% conducted on 400 pregnant women.³ According to the Ugwuja EI et al study, 37.6% of the subjects were overweight, while about 4% of the subjects were underweight, whereas, 11 (28.9%) were undernourished. in our study.⁴

In tackling the complex problem of maternal anaemia, a thorough review is necessary to comprehend its origins, effects, and practical solutions starting in the girl's early life.

A study by Reem Eltayeb et.al⁵ done in Saudi Arabia, showed that Anaemia in pregnant women was found to be negatively correlated with BMI, and obesity decreases the incidence of anemia by 10.0%. According to the present study, a majority of pregnant women were underweight i.e. 11(28.9%) among them 23.7% had anemia followed by only 2.6% of overweight women who had anemia. It means the current study showed, that underweight women are more likely to devanemiaemia and have lower HB levels. This could put newborns at higher risk of anemia.

Jing Tan et al⁶ conducted a study that showed Underweight women were linked to a higher risk of IDA compared to those of normal weight (test IDA: aOR: 1.33, 95% CI: 1.15–1.53; composite IDA: 1.31, 1.17–1.45), while overweight and obese women had a lower risk (overweight: test IDA: 0.65, 0.52–0.81; composite IDA: 0.80, 0.69–0.92; obese women: 0.27, 0.12- 0.63; and 0.36, 0.22–0.57), which was similar to our study.⁶

Conclusion

The recent study found that pregnant women who are underweight tend to have greater rates of anaemia and lower blood haemoglobin levels.

References

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In addressing the multifaceted issue of maternal anemia, a comprehensive overview of relevant research is essential for understanding its causes, impacts, and effective interventions from childhood itself of girl.

In tackling the complex problem of maternal anaemia, a thorough review is necessary to comprehend its origins, effects, and practical solutions starting in the girl's early life.