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EVALUATION OF SERUM MAGNESIUM LEVELS IN PREGNANT WOMEN WITH AND WITHOUT GESTATIONAL DIABETES MELLITUS AT 24-28 WEEKS

Obstetrics & Gynaecology

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ABSTRACT

Gestational Diabetes Mellitus (GDM) is a prevalent pregnancy-related metabolic disorder that can result in complications for both mother and fetus. Magnesium plays a crucial role in glucose metabolism, insulin function, and cellular signaling. This study evaluates serum magnesium levels in pregnant women with and without GDM at 24-28 weeks of gestation. A cross-sectional observational study was conducted at a tertiary care hospital with 100 participants. Serum magnesium levels were meas. The study found significantly lower serum magnesium levels in women with GDM, highlighting the potential of magnesium supplementation as a preventive strategy in managing GDM.

KEYWORDS

INTRODUCTION

Gestational Diabetes Mellitus (GDM) is associated with increased maternal and fetal complications. Women with GDM have a higher risk of developing Type 2 Diabetes Mellitus (T2DM). Magnesium is essential for glucose metabolism and insulin function. This study aims to evaluate serum magnesium levels in pregnant women with and without GDM at 24-28 weeks and explore its correlation with glucose metabolism.

MATERIALS AND METHODS

A cross-sectional observational study was conducted at the Department of Obstetrics and Gynaecology, Kamla Nehru State Hospital for Mother and Child, Indira Gandhi Medical College, Shimla. Ethical approval was obtained before the study.

A total of 100 pregnant women (50 with GDM, 50 without) were enrolled. A 75g OGTT was performed, and serum magnesium levels were measured using photometric methods. Data analysis was conducted using SPSS, with significance set at $p < 0.05$.

RESULT

The mean serum magnesium level in the GDM group was 1.82 ± 0.07 mg/dL, compared to 2.29 ± 0.15 mg/dL in the control group ($p < 0.001$). OGTT levels were significantly higher in the GDM group. Demographic factors such as age, gravidity, and rural residence were associated with higher GDM prevalence.

DISCUSSION

Our findings align with previous studies indicating an association between lower magnesium levels and GDM. Magnesium deficiency contributes to insulin resistance and systemic inflammation, both of which contribute to the progression of GDM. Routine screening for magnesium levels in pregnancy may aid in early detection and management of GDM.

CONCLUSION

This study demonstrates a significant association between lower serum magnesium levels and GDM. Regular screening for magnesium deficiency in pregnant women may aid in early detection and prevention. Magnesium supplementation could serve as an adjunct to current management strategies for GDM.

Table 1: Relationship of Family History of Diabetes Mellitus with GDM

Family History	Study Group (n=50)	Control Group (n=50)
Yes	10%	6%
No	90%	94%

Table 2: Serum Magnesium Levels in Study and Control Groups

Serum Magnesium (mg/dL)	Study Group (GDM)	Control Group (Non-GDM)
1.8 - 2.0	100%	4%
2.1 - 2.2	0%	34%
2.3 - 2.5	0%	62%
Mean ± SD	1.82 ± 0.07	2.29 ± 0.15

Table 3: OGTT Levels in Study and Control Groups

OGTT Level (mg/dL)	Study Group (GDM)	Control Group (Non-GDM)
< 100	0%	24%
100 - 120	0%	34%
121 - 140	0%	42%
141 - 160	76%	0%
161 - 180	18%	0%
> 180	6%	0%
Mean ± SD	155 ± 12.98	115.82 ± 16.33

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