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Effect of lipid-based multiple micronutrients supplementation in underweight primigravida pre-eclamptic women on maternal and pregnancy outcomes: Randomized clinical trial

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Background and Objectives: In pre-eclampsia, restricted blood supply due to the lack of trophoblastic cell invasion and spiral artery remodelling is responsible for adverse pregnancies and maternal outcomes, which is added to by maternal undernutrition. This study was designed to observe the effect of multiple nutritional micronutrient supplements on the pregnancy outcomes of underweight pre-eclamptic women. To investigate the effects of lipid-based multiple micro supplementations (LNS-PLW) on pregnancy and maternal outcomes in underweight primigravida pre-eclamptic women.

Materials and Methods: A total of 60 pre-eclamptic, underweight primigravida women from the antenatal units of tertiary care hospitals in the Khyber Pakhtunkhwa Province, Pakistan, were randomly divided into two groups (Group 1 and Group 2). The participants of both groups were receiving routine treatment for pre-eclampsia: iron (60 mgs) and folic acid (400 ug) IFA daily. Group 2 was given an additional sachet of 75 gm LNS-PLW daily till delivery. The pregnancy outcomes of both groups were recorded. The clinical parameters, haemoglobin, platelet count, and proteinuria were measured at recruitment.

Results: The percentage of live births in Group 2 was 93% compared to 92% in Group 1. There were more normal vaginal deliveries (NVDs) in Group 2 compared to Group 1 (Group 2, 78% NVD; group 1, 69% NVD). In Group 1, 4% of the participants developed eclampsia. The frequency of caesarean sections was 8/26 (31%) in Group 1 and 6/28 (22%) in Group 2. The number of intrauterine deaths (IUDs) was only 1/28 (4%) in Group 2, while it was 2/26 (8%) in Group 1. The gestational age at delivery significantly improved with LNS-PLW supplementation (Group 2, 38.64 0.78 weeks; Group 1, 36.88 1.55 weeks, p-value 0.006). The Apgar score (Group 2, 9.3; Group 1, 8.4) and the birth weight of the babies improved with maternal supplementation with LNS-PLW (Group 2, 38.64 0.78 weeks: Group 1, 36.88 1.55; p-value 0.003). There was no significant difference in systolic blood pressure, while diastolic blood pressure (Group 2, 89.57 2.08 mmHg; Group1,92.17 5.18mm Hg, p-value0.025) showed significant improvement with LNS-PLW supplementation. The haemoglobin concentration increased with the LNS-PLW supplement consumed in Group 2 (Group 2, 12.15 0.78 g/dL; Group 1, 11.39 0.48 g/dL, p-value < 0.001). However, no significant difference among the platelet counts of the two groups was observed. Conclusions: The pregnancy and maternal outcomes of underweight pre-eclamptic women can be improved by the prenatal daily supplementation of LNS-PLW during pregnancy, along with IFA and regular antenatal care and follow-up.

Keywords: pre-eclampsia; lipid-based nutritional supplements; pregnancy outcome; maternal outcome; Khyber Pakhtunkhwa Province of Pakistan

Biography

Rubina Nazli is a clinical researcher from Pakistan specializing in maternal nutrition and high-risk pregnancy outcomes. Her work focuses on evaluating lipid-based multiple micronutrient supplementation and its impact on underweight primigravida pre-eclamptic women through advanced randomized clinical trials.

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