

## The Relationship of Vitamin D and Calcium level with Preeclampsia Severity: A Case- control Study

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### Abstract

#### Background

Vitamin D deficiency is associated with physiologic changes that are similar to pathogenesis of preeclampsia. Although association of vitamin D and preeclampsia has been studied previously, their results are not consistent. The aim of this study was to investigate the relationship of serum vitamin D and calcium with preeclampsia severity.

**Materials and Methods:** This case- control study was conducted in 75 healthy pregnant women and 74 pregnant women with preeclampsia (46 mild preeclampsia and 28 severe preeclampsia) in Qazvin, Iran in 2015. Serum vitamin D, calcium, and albumin were measured; corrected calcium was also calculated. Hypocalcemia and vitamin D deficiency were compared between the groups. Logistic regression analysis was used to study the independent association of hypocalcemia and hypovitaminosis D with preeclampsia.

#### Results

Mean serum vitamin D level was  $27.7 \pm 15.3$ ,  $22.9 \pm 15.9$ , and  $27.6 \pm 16.6$  in normal, mild preeclampsia, and severe preeclampsia groups ( $P > 0.05$ ); also vitamin D deficiency was not different between the groups. Hypocalcemia in severe preeclampsia group was more frequent than normal group (25.9% vs. 6.6%,  $P: 0.017$ ). Hypocalcemia was associated with severe preeclampsia after adjustment for age, parity, and calcium supplement consumption (OR: 6.7, 95% CI: 1.45-30.79;  $P: 0.015$ ).

#### Conclusion

There was not any association between vitamin D deficiency and preeclampsia in the present study, however low corrected serum calcium was associated with about six times increased risk of severe preeclampsia. More studies are needed to determine the role of hypocalcemia and vitamin D in preeclampsia.

**Key Words:** Hypocalcemia, Pre-eclampsia, Pregnancy, Vitamin D deficiency.

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