



**LETTER TO THE EDITOR: MATERNAL VITAMIN D DEFICIENCY AND
PREECLAMPSIA: A PRENATAL RISK REDUCTION GOAL**

**EDİTÖRE MEKTUP: ANNEDE D VİTAMİNİ EKSİKLİĞİ VE PREEKLAMPSİ: DOĞUM ÖNCESİ
RİSK AZALTMA HEDEFİ**

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Letter to the Editor

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We carefully read the recent study published in your esteemed journal (Demir Özkan et al., 2024, Sabuncuoğlu Şerefeddin Health Sciences), 'Comparison of Maternal Serum Vitamin D Levels in Preeclamptic and Healthy Pregnant Women. The authors emphasize that significantly lower serum 25-hydroxyvitamin D (25-OH D) levels were found in pregnant women diagnosed with preeclampsia compared to normotensive pregnant controls, and they believe that vitamin D deficiency may be a factor playing a role in the pathogenesis of preeclampsia. This finding is clinically significant in reducing the increasing incidence of maternal morbidity and mortality worldwide. It is also an important observation for public health concerns, as it may reduce infant mortality.

The compatibility of this relationship with the biological system is supported by several accepted and proven mechanisms. Vitamin D plays many biological roles beyond calcium-phosphate homeostasis. For example: It affects angiogenesis, placental development, endothelial function, and the regulation of the renin-angiotensin system (Urrutia and Thorp, 2012; Rammos et al., 2008). Deficiency in this vitamin, which is also very common in the general population, can reduce angiogenesis, impair trophoblastic cell development and invasion, and increase resistance to blood flow. All of these effects play a fundamental role in the pathophysiology of preeclampsia.

In this valuable study, the authors matched all groups for age, parity, gestational age, and other diseases, eliminating the influence of some confounding factors, further strengthening the validity of their results.

These results are consistent with numerous studies reporting a higher prevalence of vitamin D deficiency in pregnant women diagnosed with preeclampsia (Bodnar et al., 2007; Haugen et al., 2009; Bärebring et al., 2016; Andersen et al., 2015). Bodnar et al. (2007) showed that each 5 nmol/L decrease in 25-OH D doubled the risk of preeclampsia, while Haugen et al. (2009) observed a significant 27% reduction in the incidence of preeclampsia in women with adequate vitamin D intake.

Similarly, Bärebring et al. (2016) reported that increases in 25-OH D during pregnancy were associated with a lower risk of preeclampsia. Furthermore, Perçin and Kurtoğlu (2011) and Singla et al. (2015) emphasized that the timing and cutoff values of vitamin D assessment can be a factor influencing clinical outcomes.

One of the most striking findings of the study was the high prevalence of vitamin D deficiency in the entire cohort; only 15.7% of women had adequate vitamin D levels. This finding is particularly relevant in countries with abundant sunshine, suggesting that lifestyle factors, inadequate nutrition, inadequate intake, and limited public health policies may be more important factors than geographical characteristics.

This widespread vitamin D deficiency not only affects hypertensive disorders during pregnancy but also has consequences for fetal skeletal health, immune system functions, and neonatal pathologies (Holick et al., 2011; Wei et al., 2012).

The evidence provided by this study and all the studies mentioned above highlights the need to integrate vitamin D screening into routine prenatal checkups, especially for pregnant women at higher risk of preeclampsia. Randomized controlled trials are needed to clearly demonstrate whether vitamin D supplementation can reduce the incidence and severity of preeclampsia. However, the lack of risk, low cost, and numerous potential benefits of vitamin D supplementation make it a valuable preventive strategy

(Haugen et al., 2009; Andersen et al., 2015; Holick et al., 2011). Furthermore, public health measures such as dietary supplementation, awareness campaigns for both healthcare providers and pregnant women, and targeted supplementation programs can address this deficiency at the community level, thus preventing many adverse maternal and fetal complications.

In conclusion, the important data obtained by Özkan et al. from the Turkish population contribute substantially to the current body of evidence linking maternal vitamin D deficiency and preeclampsia. Further large-scale multicenter studies are needed to determine the optimal screening times, supplementation timing, and doses. Screening for vitamin D deficiency during pregnancy could be a simple yet effective policy to improve maternal and fetal health outcomes and reduce treatment costs worldwide.

Keywords: Maternal vitamin D, Preeclampsia, Pregnancy, 25-hydroxyvitamin D

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