Perspective

High prevalence of vitamin D deficiency in Pakistan and miscarriages: A hazard to pregnancies

The fact that vitamin D deficiency (VDD) is currently plaguing South Asia and has developed into an endemic condition in that region, is a very troubling situation. Given the significance of vitamin D to one’s nutrition, it is exceedingly concerning that Pakistan has the highest incidence of adult vitamin D deficiency in South Asia at 73%, with a mean vitamin D level of 17.93ng/mL [1]. It has the greatest impact primarily on pregnant women in Pakistan, who account for approximately 79.7% of those who do not get enough vitamin D in the general population [2]. This is a cause for considerable concern since it raises the risk of potentially fatal complications during pregnancy, such as gestational diabetes, preeclampsia, and premature births [3].

However, a striking discovery has been made about a complication of pregnancy, miscarriage, that leads to 17% of clinically recognized pregnancies ending in loss [4]. Recently, a review conducted by Jennifer et al. looked at the connection between vitamin D deficiency and miscarriage and made a remarkable conclusion that pregnant women with VDD have a considerably higher risk of miscarriage [5]. Because the converting enzyme, CYP27B1, and the vitamin D receptor (VDR) are widely expressed in decidua and placenta, the human placenta is a significant site for the conversion of inactive 25-hydroxyvitamin D3 [25 (OH)-D3] to active 1,25-dihydroxycholecalciferol [1,25(OH)2-D3] [6, 7]. There is evidence to indicate that vitamin D has a major impact on both the trophoblastic invasion and the remodelling of the placental artery, both of which are disrupted in a miscarriage [8]. This suggests that a decrease in blood levels of vitamin D can promote placental dysregulation, which in turn might impact the pathophysiology of miscarriage. In addition to this, vitamin D has a valuable role in the mechanism of immunomodulation at the maternal-fetal interface, which contributes to preventing miscarriage even further [9].

Given the prevalence of VDD in pregnant women in Pakistan, this study breakthrough significantly increases the risk of miscarriage for them. There is a high likelihood that VDD and the numerous pregnancy losses in Pakistan are related because it is one of the South Asian nations with the highest burden of pregnancy losses [10].

The country is already being struck by a recent Cholera outbreak amidst the torrential downpours and urban flooding [11] and is still dealing with the impacts of the Coronavirus pandemic. Therefore, there is a dire need to reduce the burden of diseases on the healthcare that is already working at its capacity and stringent measures must be put in place to combat the deficiency, particularly in women of childbearing age. Emphasis should be made on increasing safe exposure to sunlight, as it is the most economical and sustainable source of Vitamin D. As Pakistan has one of the highest percentages of short birth to pregnancy intervals (60%) [13], which can be a great factor contributing to maternal nutritional deficiencies, there is a dire need for family planning programs in order to combat the deficiency of vitamin D in pregnant women.

Most significantly, since there haven’t been enough studies on the correlation between miscarriages and VDD, the focus should be placed on more investigations in Pakistan to find such a connection. In addition, there is a need for more research to determine the ideal preconception concentrations of vitamin D that are essential to eliminate the risk of miscarriage caused by a vitamin D deficit.

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Author contributions

Najwa Salim came up with the idea and did submission. Najwa Salim, Muttia Abdul Sattar and Alishba Adnan obtained the data and wrote the article. Muttia Abdul Sattar added the references. Alishba...
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