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Review Article

**THE RELATIONSHIP BETWEEN HEMOGLOBIN AND  
HEMATOCRIT IN THE FIRST AND SECOND TRIMESTER OF  
PREGNANCY AND THE INCIDENCE OF PREECLAMPSIA**Fateme parooei <sup>1</sup>, Mahmood Anbari <sup>2</sup>, Morteza Salarzaei <sup>1\*</sup><sup>1</sup>Medical student, Student Research Committee, Zabol University of Medical Sciences,  
Zabol, Iran<sup>2</sup> Zabol University of Medical Sciences, Zabol, Iran**Abstract:**

**Introduction:** Hypertensive disorders during pregnancy is one of the most important complications of pregnancy that account for three most important causes of maternal mortality together with hemorrhage and infection.

**Methods:** In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify The relationship between hemoglobin and hematocrit in the first and second trimester of pregnancy and the incidence of preeclampsia. In this review, the papers published until early January 2017 that were conducted to study The relationship between hemoglobin and hematocrit in the first and second trimester of pregnancy and the incidence of preeclampsia were selected.

**Results:** Early diagnosis of preeclampsia is one of the most important functions of pregnancy cares. However, there is still no reliable criterion for the early diagnosis of this disease Based on the existing evidences of the pregnancies resulted in preeclampsia, the vascular wall of the spiral arteries is muscular and thick and the invasion into the trophoblast is incomplete.

**Discussion and Conclusion:** If hematocrit level of the first trimester is more than 43%, it has to do with the preeclampsia at the end of the third trimester . Every year, 75 thousand maternal deaths occur owing to hypertensive disorders. Although numerous studies have been conducted on this disease, its cause is still unknown.

**Key words:** hemoglobin ,hematocrit ,first trimester , pregnancy

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**INTRODUCTION:**

Hypertensive disorders during pregnancy is one of the most important complications of pregnancy that account for three most important causes of maternal mortality together with hemorrhage and infection (1). Every year, 75 thousand maternal deaths occur owing to hypertensive disorders. Although numerous studies have been conducted on this disease, its cause is still unknown (2). Although some risk factors have been reported for preeclampsia, this disease is only diagnosed with its own clinical presentations and it is often diagnosed late. Over the past few years, a special attention has been given to risk factors to prevent preeclampsia (3). The relationship between high levels of hemoglobin and hematocrit in the first trimester as the risk factors or predicting factors of preeclampsia in the subsequent weeks of pregnancy has been studied in several studies (4). Naturally, in the second trimester of pregnancy, increased volume of plasma occurs, and as a result, hemoglobin and hematocrit levels reduce (5). The lack of this decrease or increase of hemoglobin or hematocrit levels is likely to be associated with increased preeclampsia (6). The relationship between the contraction of maternal hemoglobin in the second trimester and preeclampsia has been indicated in a number of studies. (7)

**METHODS:**

In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify The relationship between hemoglobin and hematocrit in the first and second trimester of pregnancy and the incidence of preeclampsia. In this review, the papers published until early January 2017 that were conducted to study The relationship between hemoglobin and hematocrit in the first and second trimester of pregnancy and the incidence of preeclampsia were selected.

**FINDINGS:**

Early diagnosis of preeclampsia is one of the most important functions of pregnancy cares. However, there is still no reliable criterion for the early diagnosis of this disease Based on the existing evidences of the pregnancies resulted in preeclampsia, the vascular wall of the spiral arteries is muscular and thick and the invasion into the trophoblast is incomplete (8). Owing to the high costs and need for laboratory facilities in the health centers with limited facilities, some diagnostic tests are rarely conducted (9). The findings of the studies indicate their inaccuracy in the early diagnosis of this disease. High levels of hemoglobin in the first trimester is likely to be a warning sign for suffering from preeclampsia in the subsequent weeks of pregnancy (10).

**DISCUSSION:**

If hematocrit level of the first trimester is more than 43%, it has to do with the preeclampsia at the end of the third trimester (11). Every year, 75 thousand maternal deaths occur owing to hypertensive disorders. Although numerous studies have been conducted on this disease, its cause is still unknown (12). Every year, 75 thousand maternal deaths occur owing to hypertensive disorders. Although numerous studies have been conducted on this disease, its cause is still unknown (13). There is a relationship between hemoglobin/hematocrit levels and preeclampsia in the first and second trimester. Women with 11.75 gram in deciliter of hemoglobin and more in the first trimester as well as women with 11.75 gram in deciliter and more in the second trimester are known as "women at risk" for the incidence of preeclampsia. Thus, it is recommended to conduct follow-ups at shorter intervals (14).

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