



CODEN [USA]: IAJPBB

ISSN: 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

<http://doi.org/10.5281/zenodo.1012334>Available online at: <http://www.iajps.com>

Review Article

THE RELATIONSHIP OF THE FIRST AND THIRD TRIMESTER HEMATOCRIT LEVELS AND PREECLAMPSIA

Fateme parooei ¹, Mahmood Anbari ², Morteza Salarzaei ^{1*}¹Medical student, Student Research Committee, Zabol University of Medical Sciences,
Zabol, Iran² Zabol University of Medical Sciences, zabol, Iran**Abstract:**

Introduction: 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. 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.

Methods: In this review article, the databases Medline, Cochrane, Science Direct, and Google Scholar were thoroughly searched to identify the relationship of the first and third trimester hematocrit levels and preeclampsia. In this review, the papers published until early January 2017 that was conducted to study. The relationship of the first and third trimester hematocrit levels and preeclampsia were selected.

Results: The studies indicate that hemodynamic changes during pregnancy have no effect on the increased plasma volume in the second trimester in women suffering from preeclampsia. Thus, it can be concluded that disruption in the increased plasma volume in the second trimester is likely to be a risk signal of suffering from preeclampsia in the subsequent weeks of pregnancy.

Discussion and Conclusion: Determining hematocrit is one of the common and necessary measures taken during pregnancy. 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.

Key words: trimester hematocrit · preeclampsia**Corresponding author:****MortezaSalarzaei,**

Medical student, Student Research Committee,

Zabol University of Medical Sciences,

Zabol, Iran

Email: mr.mortezasalar@gmail.com

Tell : +989120644917

QR code



Please cite this article in press as MortezaSalarzaei et al, *The Relationship of the First and Third Trimester Hematocrit Levels and Preeclampsia*, Indo Am. J. P. Sci, 2017; 4(10).

INTRODUCTION:

Preeclampsia is a specific syndrome of pregnancy in which the perfusion of the organs decreases owing to vascular spasm and endothelium activation, and as a result, maternal and fetal presentations (1). This syndrome is one of the most important complications of pregnancy and constitutes the three most important reasons for maternal mortality with hemorrhage and infection (2). The rate of preterm labors and the intrauterine growth delay of the fetus increase alongside the preeclampsia. In severe preeclampsia, the prenatal mortality is 15%, while it is 60% in the incidence of preeclampsia and Hellp syndrome (3). In these conditions, the maternal complications are the increased risk of early placental separation, kidney failure, pulmonary edema, intracerebral hemorrhage, and intravascular coagulation (4). It is believed that numerous factors such as abnormal evolution of the placenta, predisposing factors in mother, oxidative stress, immunity incompatibility to allograft tissues of the fetus, and genetic susceptibility cause preeclampsia. These factors start to work from the beginning of the pregnancy (5).

METHODS:

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

FINDINGS:

The studies indicate that hemodynamic changes during pregnancy have no effect on the increased plasma volume in the second trimester in women suffering from preeclampsia (6). Thus, it can be concluded that disruption in the increased plasma volume in the second trimester is likely to be a risk signal of suffering from preeclampsia in the subsequent weeks of pregnancy (7). However, with respect to the relationship between blood indices of the first trimester and preeclampsia, few studies have been conducted showing different findings and limitations (7). 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. There are numerous clinical, biophysical, and biochemical tests based on preeclampsia prediction (8). 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 (9).

DISCUSSION AND CONCLUSION:

Determining hematocrit is one of the common and necessary measures taken during pregnancy (10). 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). 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(13). Moreover, hematocrit levels of the third trimester have to do with the incidence of preeclampsia in the following weeks (14). This relationship does not depend on age, weight, and other risk factors of preeclampsia. Thus, giving due attention to hematocrit levels is likely to be helpful for identifying individuals susceptible to preeclampsia and conducting preventive measures.

REFERENCES:

1. Goudarzi M, Yazdin-Nik A, Bashardoost N. The relationship of the first/third trimester hematocrit level with the birth weight and preeclampsia. *Iran Journal of Nursing*. 2008 Nov;21(54):41-9.
2. Mook-Kanamori DO, Steegers EA, Eilers PH, Raat H, Hofman A, Jaddoe VW. Risk factors and outcomes associated with first-trimester fetal growth restriction. *Jama*. 2010 Feb 10;303(6):527-34.
3. Lu ZM, Goldenberg RL, Cliver SP, Cutter G, Blankson M. The relationship between maternal hematocrit and pregnancy outcome. *Obstetrics & Gynecology*. 1991 Feb 1;77(2):190-4.
4. Koçyigit Y, Atamer Y, Atamer A, Tuzcu A, Akkus Z. Changes in serum levels of leptin, cytokines and lipoprotein in pre-eclamptic and normotensive pregnant women. *Gynecological endocrinology*. 2004 Jan 1;19(5):267-73.
5. Hsu CD, Iriye B, Johnson TR, Witter FR, Hong SF, Chan DW. Elevated circulating thrombomodulin in severe preeclampsia. *American journal of obstetrics and gynecology*. 1993 Jul 1;169(1):148-9.
6. Behzadmehr R, Keikhaie KR, Pour NS. The Study of Pregnant Women's Attitude toward Using Ultrasound in Pregnancy and its Diagnostic Value based on the Demographic Features in Amir-al-Momenin Hospital of Zabol. *Int J Adv Res Biol Sci*. 2017;4(6):58-63.
7. Poureisa M, Behzadmehr R, Daghighi MH, Akhoondzadeh L, Fouladi DF. Orientation of the facet joints in degenerative rotatory lumbar scoliosis: an MR study on 52 patients. *Acta neurochirurgica*. 2016 Mar 1;158(3):473-9.
8. Daghighi MH, Poureisa M, Safarpour M, Behzadmehr R, Fouladi DF, Meshkini A,

Varshochi M, Kiani Nazarlou A. Diffusion-weighted magnetic resonance imaging in differentiating acute infectious spondylitis from degenerative Modic type 1 change; the role of b-value, apparent diffusion coefficient, claw sign and amorphous increased signal. *The British journal of radiology*. 2016 Aug 11;89(1066):20150152.

9. Nemati M, Hajalioghli P, Jahed S, Behzadmehr R, Rafeey M, Fouladi DF. Normal Values of Spleen Length and Volume: An Ultrasonographic Study in Children. *Ultrasound in medicine & biology*. 2016 Aug 31;42(8):1771-8.

10. Behzadmehr R, Salarzaei M. PHARMACEUTICAL SCIENCES.

11. Shirazi M, Hantoush-Zadeh S, Rezaie-Keikhaie K, Pirjani R. Spontaneous Uterine Rupture and Live Fetus in 21th Week of Pregnancy with Hemorrhagic Shock Due to Placenta Percreta:

A Case Report. *Case Reports in Clinical Practice*. 2016 Jan 20;1(1):19-21.

12. Kahkhaie KR, Keikhaie KR, Vahed AS, Shirazi M, Amjadi N. Randomized comparison of nylon versus absorbing polyglactin 910 for fascial closure in caesarean section. *Iranian Red Crescent Medical Journal*. 2014 Apr;16(4).

13. Shahraki Z, Keikhaie KR, Amjadi N, Bonjar ZH, Jahantigh H, Doosti F, Shirazi M. Correlation of 4 Hour Urine Samples with 24-Hour Urine Samples for the Diagnosis of Preeclampsia. *Journal of Obstetrics, Gynecology and Cancer Research*. 2017(In Press).

14. Kahkhaie KR, Keikha F, Keikhaie KR, Abdollahimohammad A, Salehin S. Perinatal Outcome After Diagnosis of Oligohydramnios at Term. *Iranian Red Crescent Medical Journal*. 2014 May;16(5).