

WAYS FOR PREDICTION AND PRECLINICAL DIAGNOSIS OF PRE-ECLAMPSIA IN WOMEN SUFFERING WITH IRON DEFICIENCY ANEMIA

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Annotation. Preeclampsia is specific to pregnancy and is a significant contributor to maternal and perinatal morbidity and mortality worldwide. Anemia is a global health problem affecting approximately one third of the world's population. An effective predictive test for preeclampsia will facilitate early diagnosis, targeted surveillance and timely delivery.

In the Republic of Uzbekistan, the frequency of preeclampsia reaches up to 25%. The maternal mortality rate from preeclampsia according to the Ministry of Health of the Republic of Uzbekistan is 13.6% per 100,000 live births. At the same time, the region of the Republic of Uzbekistan is endemic in the incidence of anemia, which occurs in 80% of women of reproductive age, and it is clear that preeclampsia, as a rule, develops against the background of anemia. Hypochromic anemia has been and remains the main pathology of our region, most often combined with preeclampsia. One of the common complications of anemia and pregnancy is preeclampsia. Preeclampsia is specific to pregnancy and is a significant contributor to maternal and perinatal morbidity and mortality worldwide. An effective predictive test for preeclampsia will facilitate early diagnosis, targeted surveillance and timely delivery; however, limited options currently exist. A first-trimester screening algorithm has been developed and validated to predict preterm preeclampsia, which is of limited benefit for term diseases, which bear the greatest burden. Preeclampsia is a pregnancy-specific condition that affects 3–5% of all pregnancies. Its hallmark features are high blood

pressure (hypertension) and endothelial dysfunction leading to widespread end-organ damage. This includes the liver, blood, kidneys, brain and placenta. Preeclampsia is a significant contributor to maternal morbidity (including severe outcomes such as liver rupture, kidney failure, seizures (eclampsia) and stroke) and mortality worldwide. Because childbirth is the only treatment option at present, preeclampsia also contributes significantly to prematurity, neonatal morbidity, and perinatal mortality. [1,2] Anemia is a global health problem affecting approximately one third of the world's population. Anemia affects approximately 2 billion people. In 2010, the number of years lived with disability due to anemia was 68.4 million, an increase from 65.5 million in 1990. During this time period (1990–2010), the prevalence rate of anemia decreased from 40.2% to 32.9%, but more among men [2,3]. Although the causes of this disease are varied, including hemoglobinopathies, micronutrient deficiencies (such as folate, vitamin B12 and riboflavin), schistosomiasis, parasites, acute and chronic infections, chronic kidney disease. The World Health Organization (WHO) estimates that iron deficiency accounts for 50% of cases. Iron requirements increase exponentially during pregnancy to meet the increased demands of the fetoplacental unit, increase maternal red blood cell mass, and compensate for iron loss during childbirth. In more than 80% of countries worldwide, the prevalence of anemia in pregnancy is >20% and can be considered a serious public health problem. [4] The global prevalence of anemia during pregnancy is estimated to be approximately 41.8%. Undiagnosed and untreated iron deficiency anemia (IDA) can have a major impact on maternal and fetal health. Indeed, chronic iron deficiency can affect the mother's overall well-being and lead to fatigue and decreased performance. Given the significant adverse impact on maternal and fetal outcomes, early recognition and treatment of this clinical condition is fundamental [5]. Therefore, laboratory tests are recommended from the first trimester of pregnancy to assess iron status. Oral iron supplements are the first line of treatment in cases of mild anemia. However, given the numerous gastrointestinal side effects that often lead to noncompliance, other therapeutic strategies should be evaluated.

IDA during pregnancy can lead to placental problems, fetal death, infections and low iron stores in newborns. Iron plays a vital role as a cofactor for enzymes and proteins involved in the development of the central nervous system. Thus, iron deficiency may be associated with serious consequences. Indeed, early iron deficiency alters the morphology and metabolism of brain cells, has a negative effect on oligodendrocytes by altering myelination, and impairs neurotransmission. For all these reasons, iron deficiency increases the risk of deterioration in

cognitive, motor, social-emotional indicators and interferes with neurophysiological development[5,6]. Preeclampsia remains one of the most severe complications of pregnancy with a significant legacy of both maternal and perinatal morbidity. Early detection improves outcomes, but there is currently no reliable screening test to predict its development, especially during pregnancy when the disease burden is greatest. Many potential biomarkers have been identified through exploratory studies using samples of established disease. These studies generated hypotheses about potential biomarkers, with less emphasis on prediction. It is possible that a combination of biomarkers derived from multiple organs and cells may provide the best prognostic results. The use of large prospective cohort collections in unselected populations provides the best way to discover new biomarkers, but these markers—or combinations of them—must be rigorously validated in external cohorts to ensure they realize their potential to improve outcomes for pregnant women and their children.

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