



The multifaceted role of laboratory testing in pregnancy

Laboratory testing plays a multifaceted role in pregnancy, such as monitoring the physiological status of maternal and fetus body, predicting the outcomes or complications during pregnancy, and diagnosing abnormalities in fetal development. Fetal and pregnancy mortality rates have improved significantly in recent years also because of the substantial progress in the development and implementation of laboratory testing (1). In this issue of the *Journal of Laboratory and Precision Medicine*, a special issue of “Laboratory Medicine in Pregnancy” was released to discuss the role of laboratory testing in pregnancy. Some critical issues concerning pregnancy-related testing were also discussed.

Physiological harmonized changes occur during the course of healthy pregnancy and affect nearly every organ system in the body. Accordingly, modifications in the coagulation system produce a physiological hypercoagulable state aimed at reducing blood loss and preventing postpartum hemorrhage. Endocrine changes lead to maternal insulin resistance to limit maternal glucose utilization and help support the developing fetus. Moreover, changes in renal anatomy and function are essential to maintain the balance of fluids and electrolytes for a successful pregnancy for both mother and child. However, these changes are a typical “double-edged sword” for pregnant women. For example, the hypercoagulable state reduces blood loss and prevents postpartum hemorrhage but it also increases the risk of deep vein thrombosis (2). Therefore, monitoring the maternal body’s status to maintain it at a suitable balance is crucial for pregnancy management. In this special issue, the physiological changes of endocrine, renal, liver, hemodynamic, and coagulation systems, as well as the corresponding pathogenetic possible mechanisms and therapeutic implications, were discussed.

Diagnosing and predicting pregnancy-related complications are of great value for improving the management of pregnancy. The reference intervals of biochemical, hemostatic, and hematological parameters are different from those of healthy non-pregnant women and they should be well defined and correctly interpreted (3). In this special issue, the diagnostic approach for anemia, gestational diabetes mellitus, and hypertensive disorder in pregnancy was discussed in depth along with the ordering appropriateness and clinical interpretation of laboratory testing for pregnant women admitted to the emergency department.

Searching for laboratory testing that can predict potential complications (e.g., preeclampsia, gestational diabetes mellitus) is a hot topic in pregnancy management. Neutrophil to lymphocyte ratio (NLR) is a simple, rapid, and low-cost index calculated with routine hematological parameters. It reflects the strength of the inflammatory response of an individual. Because inflammation response is involved in the development of multiple pregnancy-related complications, NLR is considered as a predictor of pregnancy-related complications. In this special issue, the predictive value of NLR for pregnancy-related complications was also reviewed. Vitamin D has multiple biological functions, such as inhibiting the inflammatory response and regulating calcium metabolism. Its relationship with pregnancy-related complications has been extensively investigated in cohort studies; however, the results were heterogeneous. In this focus issue, there is a review article discussing vitamin D’s role in predicting pregnancy-related complications.

Taken together, this special issue summarizes the recent research progress in laboratory testing and pregnancy. We also wish to express our sincere gratitude to the authors of this special issue of the journal, trusting that these articles may be of interest for our readership and may be helpful for better management of pregnancy.

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