

Validation of the Cell Cycle Arrest Biomarkers in the Diagnosis of Pregnancy Related Acute Kidney Injury

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Abstract

Background: Pregnancy related acute kidney injury (PRAKI) is still a common serious problem in developing countries. Insulin-like growth factor-binding protein 7 (IGFBP7) and tissue inhibitor metalloproteinases-2 (TIMP-2) can identify critically ill patients at risk for the development of severe AKI. Objectives: To identify main causes and timing of PRAKI and to study the G1 cell cycle arrest biomarkers in cases diagnosed with (PRAKI) as a diagnostic tool. Methods: 80 pregnant women diagnosed with PRAKI were recruited from a single hospital as well as 30 age-matched pregnant women with normal pregnancy participated in this study. A urine specimen was collected from all study participants with established AKI within 24 hours of ICU admission to measure IGFBP7*TIMP-2. Results: The incidence of PRAKI was 1.1%. The most common cause of PRAKI is preeclampsia/eclampsia spectrum (61%). Most of the cases occur in the third trimester (60%) and postpartum period (23%). At a cutoff 0.33 ng/mL, the estimated sensitivity and specificity of urinary [TIMP-2]*[IGFBP7] in predicting PRAKI is 100% (95% CI) with NPV and PPV are 100%. Conclusions: Urinary [TIMP-2]*[IGFBP7] serves as a sensitive and specific biomarker in the diagnosis of PRAKI.

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