

PODOCYTURIA IN PRE-ECLAMPSIA AND PATIENTS AT HIGH RISK FOR PRE-ECLAMPSIA.

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Preeclampsia occurs in approximately 6-8% of all pregnancies.

Characterized by the new onset of hypertension, proteinuria and edema after the 20th week of gestation, it is the 2nd leading cause of maternal deaths. Though proteinuria is a hallmark of the disease, sometimes in nephrotic range, its pathophysiology is still unknown. The purpose of this study is to show presence of podocytes in urine of pre-eclamptic patients and to demonstrate a positive relationship between the number of podocytes and the degree of proteinuria.

Nineteen patients from the high risk obstetric's clinic and labor and delivery unit were selected for the study over a three week period. Nine among them were negative controls, 4 were high risk patients for pre-eclampsia and 6 were pre-eclamptic patients. Urine samples were obtained, for determination of protein/creatinine ratio and for immunohistochemical staining. We used the antibody for synaptopodin; a podocyte specific cytoskeleton protein to perform immunoperoxidase staining on the urinary sediment. Stained cells were counted under light microscopy. Two out of the 6 pre-eclamptic samples, as well as 1 out of the 4 high risk samples stained positively for podocytes;; none of the negative controls revealed any staining. Furthermore, we were unable to show direct relationship between the degree of podocyturia and proteinuria.

Podocyte injury is seen on renal histology in many experimental and human glomerular diseases. In our experiment, presence of podocytes in pre-eclamptic urine is strongly suggestive of loss of podocytes in the pathophysiology of this proteinuric disease. Future projects can focus on quantification of synaptopodin mRNA from urine samples, which can provide an accurate measure of podocyturia. Larger studies with extended follow-up are required to determine the relationship of this marker to long-term renal prognosis in pre eclampsia as well as its screening utility