

Urinary netrin-1 predict early ischemic acute kidney injury after cardiopulmonary bypass

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Abstract

Introduction: Serum creatinine is unreliable early biomarker for diagnosis of acute kidney injury (AKI) after cardiac surgery requiring cardiopulmonary bypass, we need to search for rapid and dependable marker for detection of AKI.

Aim of work: This study was designed to test urinary netrin-1 as marker of early kidney injury post-cardiac surgery. Our study included 39 subjects with preoperative normal creatinine. All patients underwent full history and routine laboratory investigation. Both serum creatinine and urinary netrin-1 were measured at 0, 6 and 24 hours after cardiac surgery.

Results: 14 patient developed AKI after cardiac surgery. A statistically significant elevation in urinary netrin-1 is found at 6 and 24 hours after CPB surgery in the AKI group; while serum creatinine failed to show any statistically significant elevation at 6 hours after CPB in the same group. No statistically significant change in level of creatinine or urinary netrin-1 at 6 and 24 hours after CPB surgery in the non AKI group. The sensitivity and specificity of urinary netrin-1 to detect AKI at 6 h after CPB surgery was 86.7% and 91.7% respectively at a cutoff value of 107.3 pg/ml. Combined urinary netrin-1 and serum creatinine have the same sensitivity and specificity.

Conclusion: Urinary netrin-1 may be considered as early sensitive biomarker of acute kidney injury at 6 hours after cardio-pulmonary bypass surgery instead of serum creatinine that rise only 24 hours after CPB surgery in cardiac surgery associated- acute kidney injury patients.

Biography

Alsayed Alnahal is currently working as Assistant Professor at Zagzaig University Hospital and is a previous Director of the dialysis unit. He is graduated in 1996 and obtained his Post-graduate in Zagazig University. He has published more than 12 publications in reputed journals.