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Bladder contractility index in posterior urethral valve: A new marker for early prediction of progression to renal failure

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Brief summary

Introduction: PUV is the most common cause of pediatric ESRD, imposing major health burden on medical community, caregivers adversely affecting the quality of life of patient. Chronic kidney disease (CKD) stage III or estimated GFR of <60 ml/min/1.73m^2 is known to be associated with more adverse renal, cardiovascular and clinical outcomes. Thus factors predicting the rapid and early progression of disease are extremely desirable. In the present study, baseline characteristics and urodynamic study (UDS) parameters of boys with PUV are correlated with CKD progression to IIIB or more

Aims and Objectives:

To study the correlation of bladder contractility index (BCI) with development of CKD stage IIIB (eGFR of ≤45 ml/min/1.73m^2) or more in boys with PUV. **Methodology:** Baseline characteristics and demographical variables of 270 boys with PUV who underwent valve fulguration at the hospital between 2000 and 2010 were recorded (Figure 1) and certain UDS parameters in follow up were noted like bladder contractility index (BCI=PdetQmax+5 Qmax), end filling pressure(EFP), compliance (ΔC), bladder outlet obstruction index (BOOI= Pdet Qmax –2 Qmax) and bladder volume efficiency (BVE=Voided volume/total capacity). Fate of patients in follow up was cheched in December 2015.

Results: Mean follow-up period was 8.5 years (range 5-15) and median age of patients at the time of evaluation was 5.8 yrs. At the end of the study, 21.8% (59/270) patients had progressed to CKD stage IIIB or more (primary end point). Cox regression analysis of risk factors predicting