

Interim analysis of the POIROT trial: Post-Operative Imaging after urethroplasty with peri-catheter Retrograde urethrography or trial of voiding with voiding cysto-urethrography

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Introduction & Objectives: There is no clear standard about how to perform early postoperative imaging after urethroplasty. Both peri-catheter retrograde urethrography (pcRUG) and voiding cysto-urethrography (VCUG) are used, but these techniques have not been directly compared. The aim of this study is to compare both techniques for diagnostic yield, inter- and intraobserver agreement and radiation exposure.

Materials & Methods: This trial is a prospective within-patient comparison of pcRUG and VCUG, approved by the local Ethics Committee (B670201940616). Since 2019, adult, male patients undergoing early postoperative imaging after anterior urethroplasty have been included in this trial after informed consent. All patients received pcRUG followed by VCUG 10 minutes later, unless significant extravasation was present on the pcRUG; then VCUG was not performed. pcRUG and VCUG results were recorded as 'no or insignificant extravasation' versus 'significant extravasation'. At least four weeks after the initial execution of the imaging studies, the same study results were blinded and shown to 2 experienced clinicians for review. Another 3 weeks later, 1 of the reviewers was again asked to blindly assess the same study results. The following outcome variables were assessed in this interim analysis: number of significant extravasations objectified on VCUG after negative pcRUG, inter- and intraobserver agreement (Cohen's kappa) and difference in radiation exposure between pcRUG and VCUG (Mann-Whitney U-test).

Results: In total, 25 patients were included. All patients underwent pcRUG. In 8 patients (32%) no subsequent VCUG was performed due to significant extravasation on the pcRUG (n=3,12%) or the inability to void during the examination (n=5,20%). No patients were found to have significant extravasation on VCUG when prior pcRUG was negative. Cohen's kappa for interobserver agreement of pcRUG and VCUG was respectively 0.78 and 0.82. Cohen's kappa for intraobserver agreement of pcRUG and VCUG was respectively 1.00 and 1.00. Median (IQR) dose of radiation exposure was 122 (73-143) and 203 (172-307) mGy/cm² after respectively pcRUG and VCUG (p<0.001).

Conclusions: These data suggest that VCUG has no added diagnostic value compared to pcRUG at the time of early postoperative imaging after urethroplasty and that both imaging modalities have a comparable, high inter- and intraobserver agreement. Moreover, VCUG brings along a significantly higher radiation exposure and 20% of patients is unable to void during the examination. These data plea for the use of pcRUG instead of VCUG as early postoperative imaging after urethroplasty.