# Indirect signs of infravesical obstruction on voiding cystourethrography improve post-neonatal posterior urethral valves detection rate

## Electronic Supplementary Material

**Supplementary Table 1. Clinical, radiological, and biochemical characteristics of the non-toilet-trained patients, with and without PUV.**

|  | All patients No.= 70 | PUV (no) No.= 52 | PUV (yes) No.= 18 | p |
|---|---|---|---|---|
| Age at cystography, yr, median (IQR) | 0.40 (0.50) | 0.39 (0.47) | 0.42 (0.66) | 0.65 |
| Birth weight, kg, mean (SDS) | 3.2 (0.58) | 3.2 (0.57) | 3.2 (0.63) | 0.88 |
| Birth weight <2500gr, No. (%) | 7 (10.0) | 4 (7.7) | 3 (16.7) | 0.32 |
| Preterm birth, No. (%) | 13 (18.6) | 9 (17.3) | 4 (22.2) | 0.73 |
| Febrile UTI, No. (%) | 30 (42.8) | 21 (40.4) | 9 (50.0) | 0.5 |
| Non-febrile UTI, No. (%) | 9 (12.8) | 7 (13.5) | 2 (11.1) | 0.99 |
| UTI and UTD, No. (%) | 17 (24.3) | 11 (21.1) | 6 (33.3) | 0.29 |
| UTI without VUR, No. (%) | 18 (25.7) | 12 (23.1) | 6 (33.3) | 0.22 |
| UTI with VUR, No. (%) | 16 (22.8) | 12 (23.1) | 4 (22.2) | 0.99 |
| Monolateral APDP>15mm, No. (%) | 13 (18.6) | 11 (21.1) | 2 (11.1) | 0.49 |
| Bilateral APDP>5mm, No. (%) | 23 (32.8) | 17 (32.7) | 6 (33.3) | 0.96 |
| Megaureter>7mm, No. (%) | 18 (25.7) | 12 (23.1) | 6 (33.3) | 0.39 |
| Bilateral megaureter, No. (%) | 3 (4.3) | 1 (1.9) | 2 (11.1) | 0.09 |
| PUV direct signs on VCUG, No. (%) | 7 (10) | 0 (0) | 7 (38.9) | <0.001 |
| PUV indirect signs on VCUG, No. (%) | 17 (24.2) | 5 (9.6) | 12 (66.7) | <0.001 |
| PUV direct and indirect signs, No. (%) | 1 (1.4) | 0 (0) | 1 (5.6) | 0.25 |
| Any radiological sign, No. (%) | 23 (32.8) | 5 (9.6) | 18 (100.0) | <0.001 |
| Presence of VUR, No. (%) | 25 (35.7) | 19 (36.5) | 6 (33.3) | 0.80 |
| KL<2SDS, No. (%) | 8 (11.4) | 5 (9.6) | 3 (16.6) | 0.41 |
| SRF<40%, No. (%) | 13 (18.6) | 10 (19.2) | 3 (16.7) | 0.81 |
| Hypertension, No. (%) | 0 (0) | 0 (0) | 0 (0) | 0.99 |
| Reduced eGFR, No. (%) | 0 (0) | 0 (0) | 0 (0) | 0.99 |
| Proteinuria, No. (%) | 2 (2.9) | 2 (3.8) | 0 (0) | 0.99 |
| Kidney injury, No. (%) | 2 (2.9) | 2 (3.8) | 0 (0) | 0.99 |

For normal distributed variables means ± SDS are shown, while for non-parametric ones median and interquartile range are shown.

*Abbreviations:* APDP, antero-posterior diameter of the pelvis; eGFR, estimated glomerular filtration rate; IQR, interquartile range; KL, kidney length; PUV, posterior urethral valves; SDS, standard deviation score; SRF, split renal function; UTD, urinary tract dilation; UTI, urinary tract infection; VCUG, voiding cystourethrography; VUR, vesico-ureteral reflux.

**Supplementary Table 2. Clinical, radiological, and biochemical characteristics of the toilet-trained patients with and without PUV.**

| | All patients No.= 48 | PUV (no) No.= 23 | PUV (yes) No.= 25 | p |
|---|---|---|---|---|
| **Age at cystography, yr, mean (SDS)** | 7.4 (4.1) | 6.5 (4.3) | 8.3 (3.8) | 0.13 |
| **Birth weight, kg, mean, (SDS)** | 3.1 (0.47) | 3.0 (0.46) | 3.1 (0.49) | 0.57 |
| **Birth weight <2500gr, No. (%)** | 6 (12.5) | 3 (13.0) | 3 (12.0) | 0.99 |
| **Preterm birth, No. (%)** | 7 (14.6) | 3 (13.0) | 4 (16.0) | 0.99 |
| **Micturition symptoms, No. (%)** | 24 (50.0) | 8 (34.8) | 16 (64.0) | 0.04 |
| **Febrile UTI, No. (%)** | 13 (27.1) | 5 (21.7) | 8 (32.0) | 0.42 |
| **Non-febrile UTI, No. (%)** | 12 (25.0) | 4 (17.4) | 8 (32.0) | 0.32 |
| **UTI and UTD, No. (%)** | 4 (8.3) | 3 (13.0) | 1 (4.0) | 0.34 |
| **UTI without VUR, No. (%)** | 8 (16.7) | 2 (8.7) | 6 (24.0) | 0.25 |
| **UTI with VUR, No. (%)** | 11 (22.9) | 5 (21.7) | 6 (24.0) | 0.99 |
| **Pathological uroflowmetry, No. (%)** | 25 (52.1) | 8 (34.8) | 17 (68.0) | 0.02 |
| **Pathological uroflowmetry without UTI, No. (%)** | 14 (29.2) | 4 (17.4) | 10 (40.0) | 0.12 |
| **Pathological uroflowmetry with UTI, No. (%)** | 8 (16.7) | 0 (0) | 8 (32.0) | 0.004 |
| **Monolateral APDP>15mm, No. (%)** | 5 (10.4) | 3 (13.0) | 2 (8.0) | 0.66 |
| **Bilateral APDP>5mm, No. (%)** | 6 (12.5) | 3 (13.0) | 3 (12.0) | 0.99 |
| **Megaureter>7mm, No. (%)** | 4 (8.3) | 2 (8.7) | 2 (8.0) | 0.99 |
| **Bilateral megaureter, No. (%)** | 2 (4.2) | 1 (4.3) | 1 (4.0) | 0.99 |
| **PUV direct signs on VCUG, No. (%)** | 15 (31.2) | 0 (0) | 15 (60.0) | <0.001 |
| **PUV indirect signs on VCUG, No. (%)** | 16 (33.3) | 3 (13.0) | 13 (52.0) | 0.006 |
| **PUV direct and indirect signs, No. (%)** | 4 (8.3) | 0 (0) | 4 (16.0) | 0.11 |
| **Any radiological sign, No. (%)** | 27 (56.3) | 3 (13.0) | 24 (96.0) | <0.001 |
| **Presence of VUR, No. (%)** | 14 (29.2) | 7 (30.4) | 7 (28.0) | 0.85 |
| **KL<2SDS, No. (%)** | 9 (18.9) | 4 (17.4) | 5 (20.0) | 0.99 |
| **SRF<40%, No. (%)** | 6 (12.5) | 2 (8.7) | 4 (16.0) | 0.67 |
| **Hypertension, No. (%)** | 0 (0) | 0 (0) | 0 (0) | 0.99 |
| **Reduced eGFR, No. (%)** | 5 (10.4) | 3 (13.0) | 2 (8.0) | 0.66 |
| **Proteinuria, No. (%)** | 1 (2.1) | 0 (0) | 1 (4.0) | 0.99 |
| **Kidney injury, No. (%)** | 6 (12.5) | 3 (13.0) | 3 (12.0) | 0.99 |

For normal distributed variables means ± SDS are shown, while for non-parametric ones median and interquartile range are shown.

*Abbreviations:* APDP, antero-posterior diameter of the pelvis; eGFR, estimated glomerular filtration rate; IQR, interquartile range; KL, kidney length; PUV, posterior urethral valves; SDS, standard deviation score; SRF, split renal function; UTD, urinary tract dilation; UTI, urinary tract infection; VCUG, voiding cystourethrography; VUR, vesico-ureteral reflux.