

MACROPLASTIQUE INJECTION IS EFFECTIVE IN THE MANAGEMENT OF NEUROGENIC VESICoureTERIC REFLUX IN SPINAL CORD INJURY POPULATION. COMPARISON OF PRE AND POST INJECTION URODYNAMIC FINDINGS WITH THE OUTCOME.

Hypothesis / aims of study

Vesicoureteric reflux (VUR) is a known complication of neurogenic lower urinary tract dysfunction which results to progressive renal deterioration and renal failure. Surgical correction, the golden standard for VUR management, has become less popular since the bulking agents are available. The aim of this study is to assess the efficacy of macroplastique in managing VUR in spinal cord injury (SCI) population and correlate the pre-and post-injection urodynamic findings with the outcome.

Study design, materials and methods

We reviewed all SCI patients with upper motor neuron lesion, who had undergone a subureteric injection of macroplastique for VUR between 2007 and 2015. All patients had preoperative video-urodynamic studies (VUDS) and VUDS follow up at 3 months postoperatively.

The inclusion criteria were: age>18 years, no previous interventions for neurogenic overactivity, upper motor neuron lesion, baseline and follow-up videourodynamics assessment, proven VUR, adequate follow up(≥12 months) and at least 2 post-intervention annual ultrasonographic assessments of urinary tract.

The primary end point was the overall treatment rate of VUR at 3 months and the secondary outcomes were the success rate (treated+improved) and the comparison of urodynamic parameters (pre-and postinjection). Data was retrieved from patient records, operation notes, clinical follow-ups and urodynamic traces.

The statistic software SPSS 21.0 was used. Inferential statistics used for demographic characteristics and baseline calculations. The t-test was used for the intra-group variability and the non-parametric Mann-Whitney test to assess the variability between the two groups.

Results

74 SCI patients were identified who had either undergone unilateral or bilateral macroplastique procedure. Results were available for 48 patients and 62 refluxing ureters. The mean age at operation was 48.3 years (SD:15.4, range: 20-71 years) while the median time from VUR diagnosis since injury was 13 months (SD:91.8, range: 2-398). There were 20 quadriplegics and 28 paraplegics. Mean follow up was 56.2 months (SD:34.9, range:12-150).

In 3 months, the overall treatment rate was 79.1% and the overall success rate (treated + improved) was 90.3%. 7 (11.3%) units improved and downgraded, while 6 (9.7%) failed. The results were similar at 12 months follow up. Those who downgraded or failed had a second injection or underwent ileocystoplasty.

The comparison of baseline urodynamic parameters between the two groups (treated vs. failures), showed significant differences in cystometric capacity (396.9 mls vs. 293.8 mls, $p=0.047$), bladder compliance (18.06 mls/cmH₂O vs 7.86 mls/cmH₂O, $p=0.023$) and degree of reflux (2 vs 3, $p<0.01$) in favour of the treated group. The maximum detrusor filling pressures was higher in the failures group without reaching statistical significance ($p=0.077$). Detrusor overactivity was more common in failures group as compared to the treated group (92.3% vs. 73.5%). Even though there were no differences based on the level of injury, patients with incomplete injury showed significant response ($p<0.001$). There were no immediate postoperative complications, but there was 1/62 ureteric obstruction that required temporary stenting.

Interpretation of results

The results of this study confirm that Macroplastique is effective in the management of VUR in the SCI population. The injection of Macroplastique is a quick procedure, with low complication and high resolution rate. Care should be taken though to treat the parameters of the neurogenic bladder that contributes to secondary VUR development like detrusor overactivity and poor bladder compliance. The comparison of baseline urodynamic parameters showed that patients who responded to Macroplastique had better cystometric capacity and compliance while in those who failed the reflux grade was worst.

Concluding message

The bulking agent Macroplastique is effective in the management of neurogenic VUR with acceptable treatment rates.

Disclosures

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