THE CHANGES OF VOIDING PATTERN AND THE RISK FACTORS OF VOIDING DYSFUNCTION AFTER MID-URETHRAL SLING (TVT-S, TVT-O, T-SLING)

Hypothesis / aims of study
The purpose of this study was to determine the changes of voiding pattern after mid-urethral sling according to the time and to investigate the risk factors of voiding dysfunction occurring 1 day after surgical treatment of urinary incontinence. We also evaluated whether type of mid-urethral sling can be affected to early voiding pattern after operation.

Study design, materials and methods
From March 2007 to December 2010, 247 women underwent a mid-urethral sling, TVT-s, TVT-o and T-sling in order of precedence. Twenty-one were excluded from analysis because of pelvic organ prolapse, previous anti-incontinence operation, detrusor underactivity (<20 cmH2O) and low flow rate (<15 ml/sec). The data from 226 women were collected. Seventy women were operated by TVT-s (group I), 74 were operated by TVT-o (group II) and 82 were operated by T-sling (group III). Multiple parameter including demographic data, type of surgical procedure (TVT-s, TVT-o & T-sling), IPSS questionnaire, post-operative pain score, uroflow and residual urine were analyzed at post-operative 1 week, 4 weeks, and 12 weeks. Preoperative urodynamic study findings were analyzed. Postoperative voiding dysfunction was defined as post-void residual urine measuring greater than 100cc at two or more successive trials.

Results
Total IPSS scores were 7.3±2.3, 7.5±3.1, 8.1±2.5 in group I, II and III preoperatively. 13.6±5.5, 14.2±8.4, 14.1±6.2 at 1 week, 9.8±5.3, 12±6.1, 14.1±4.6 at 4 weeks, and 8.7±6.5, 11.4±5.3 and 13.2±3.6 at 12 weeks. The voiding sub-scores (1, 3, 5, 6) were 4.5±2.3, 5.2±2.9, 5.3±3.8 in group I, II and III preoperatively, 7.7±4.8, 9.8±6.2 and, 10.4±3.9 at 1 week, 6.6±3.8, 9.8±5.9 and, 9.6±4.8 at 4 weeks and 6.9±3.7, 8.4±3.9 and, 8.3±3.8 at 12 weeks. Qmax were 21.5±14.75, 22.5±8.9 and 24.1±12.4 ml/sec in group I, II and III preoperatively, 19.3±6.8, 15.3±6.7 and 18.3±5.9 at 1 week, 21.5±7.5, 17.2±11.2 and 20.3±4.7 at 4 weeks, and 21.7±6.3, 19.1±10.2 and 20.6±4.4 at 12 weeks. Pain score were 3.2±0.8, 5±1.1, and 5.2±1.3 in group I, II and III on op. date, 2.2±0.6, 2.5±0.7 and 2.6±0.6 at 1 week, 1.0±0.3, 1.1±0.4 and 1.1±0.2 at 4 weeks, and 1.0±0.3, 1.0±0.2 and 1.0±0.1 at 12 weeks. Age, preoperative VLPP, MUCP, maximal capacities were not associated with an increased risk of voiding dysfunction. Low Qmax had a tendency to increase postvoid residual volume but, Qmax was not statistically significant. Post-void residuals were not clinically different and seven patients(3.1%) required postoperative catheterization for urinary retention (median duration 3 days)

Interpretation of results
Regardless of flow rate, the patients who complaint voiding difficulties were 4.3% (3/70), 14.9% (11/74) and 19.5% (16/82) in group I, II and III at 12 weeks. Early postoperative voiding difficulty, which urethral catheterization was needed, occurred in 4.4% (10/226) of women, 2.9% (2/70) in group I, 4% (3/74) in group II and 6% (5/82) in group III. No preoperative urodynamic findings including age were associated with an increased risk of voiding dysfunction.

Concluding message
There was a tendency of decreasing flow rate and increasing IPSS score after mid-urethral sling. 13.3% (30/226) of mid-urethral sling patients still complaint voiding difficulty with or without low flow rate. No preoperative urodynamic parameters were related to an increased risk of voiding dysfunction. TVT-s may minimally affect the early voiding dysfunction, but in the other hands, we have to watch over the long term success rate.

References