

## RISK FACTORS ON POST-OPERATIVE DETRUSOR OVERACTIVITY FOLLOWING EXTENSIVE VAGINAL PELVIC RECONSTRUCTIVE SURGERY

### Hypothesis / aims of study

Detrusor overactivity (DO) is defined as an urodynamic observation characterized by involuntary detrusor contractions during the filling phase that may be spontaneous or provoked. DO following pelvic organ prolapse (POP) surgery is a long-standing distressing concern for surgeons and patients. The mechanisms by which postoperative DO can develop are not fully understood. The objective of this study is to identify the risk factors for DO in women following extensive vaginal pelvic reconstructive surgery (PRS) for advanced POP.

### Study design, materials and methods

Women who underwent trans-vaginal extensive pelvic reconstructive surgery from January 2006 to December 2015 were enrolled. Inclusion criteria were women with prolapse POP-Q stage  $\geq$  III who had PRS with or without transvaginal mesh (TVM) for advanced POP. We excluded women who have incomplete pre-operative data.

Surgical procedures carried out were vaginal hysterectomy, anterior and posterior colporrhaphy with or without TVM and sacrospinous fixation (SSF) with or without MUS. Follow-up evaluations were scheduled at one week, one month, three months, six months, and annually.

Standard pre-operative and post-operative urogynecological evaluation were performed for all our patients. Evaluations comprised detailed history, quality of life (QoL) questionnaires, vaginal examinations, 72hr bladder diary and ultra-sonographic urethral cystography. Postoperative urodynamics were performed at six months to one year postoperatively. The outcome of postoperative DO was documented based on these urodynamics.

### Results

1,503 women with severe POP stages III and IV who had undergone vaginal PRS with or without MUS during this study period were reviewed: 56 women were excluded due to the incomplete post-operative data; 1447 women were finally included in this study. Women who had TVM insertion were 1083 of 1447 (74.84%) and concomitant MUS were 353 (24.39%). The follow-up period after pelvic reconstructive procedure for POP ranged from 12 to 87 months (median 59.6 months).

Age distributions between patient groups showed that postoperative DO was significantly more in the age group  $\geq$  66yr years. Even presence of neurological disorders (CVA, Parkinsonian disease) and pre-op urodynamic parameters like MUCP  $\geq$  60 cmH<sub>2</sub>O, MFR <15 ml/s, Dmax  $\geq$  20 cmH<sub>2</sub>O and PVR  $\geq$  200 ml were significantly associated with post-operative DO either de novo or persistent. However, parity, menopausal status, obesity, uterine preservation, presence of diabetes mellitus and type of vaginal mesh with and without MUS used did not have significant impact on the development of DO.

### Interpretation of results

Women aged  $\geq$  66yr were 2.71 times, women with stroke were 18.72 times, Parkinsonian disease were 15.56 times, MUCP  $\geq$  60 cmH<sub>2</sub>O were 1.87 times, MFR <15 ml/s were 1.04 times, Dmax  $\geq$  20 cmH<sub>2</sub>O were 1.9 times and PVR  $\geq$  200ml were 2.15 times at greater risk than women aged <66yr, women without stroke and Parkinsonian disease, MUCP < 60 cmH<sub>2</sub>O, Dmax < 20 cmH<sub>2</sub>O, MFR <15 ml/s and PVR < 200ml for developing postoperative DO either de novo or persistent after vaginal PRS with and without MUS procedure.

### Concluding message

Age  $\geq$  66 yr, neurological factors like CVA and Parkinsonian disease, pre-operative BOO (MUCP  $\geq$  60 cmH<sub>2</sub>O, MFR < 15 ml/s, Dmax  $\geq$  20 cmH<sub>2</sub>O) and PVR  $\geq$  200ml are independent risk factors for developing postoperative DO following vaginal PRS with and without MUS for advanced POP.

### Disclosures

**Funding:** Nil **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Chang Gung Memorial Hospital intuitional review board **Helsinki:** Yes **Informed Consent:** Yes