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Comparison of two mid-urethral sling operations and their effect on urethral mobility assessed by dynamic MR Imaging.

Publications of the University of Eastern Finland. Dissertations in Health Sciences 33. 2010. 72 p.

The dissertation was held 13.11.2010 at the University of Eastern Finland.

ABSTRACT

Female urinary incontinence (UI) is a common condition, with a prevalence in the Finnish population ranging between 20% in women of the age of 25-60 years and 59% in women over 70 years of age. Female urinary incontinence has a high negative impact on quality of life, particularly on social, physical, psychological, occupational, and sexual aspects of life. Moreover, urinary incontinence has a major cost effect on the health care system.

Permanent cure of the most common form of urinary incontinence, i.e. stress urinary incontinence, is usually achieved by anti-incontinence surgery. New minimally invasive anti- incontinence surgical procedures aiming on supporting the middle portion of the urethra in order to achieve continence have resulted in higher cure rates and lower rates of morbidity than those found as a result of more invasive traditional anti-incontinence operations, which are aimed on correcting hypermobility of the bladder neck.

Two different approaches to support the mid-urethra have been presented, the retropubic and the obturator routes. By means of a multicenter randomized clinical trial carried out at seven centers in Finland we wanted to compare two different mid-urethral sling operations, TVT and TVT-O, for the treatment of female stress urinary incontinence in terms of cure rates and complication rates. In order to evaluate the support of the mid-urethra as an important element of maintaining urinary continence behavior of the mid-urethra was investigated in healthy volunteers and in stress urinary incontinent women before and after mid-urethral sling surgery by dynamic magnetic resonance imaging (MRI).

Our randomized clinical trial, being one of the largest (n=273) and one with the longest follow- up, confirms the results of other middle-term follow-up studies. The cough stress test was negative up to 95.5% in the TVT group after one year follow-up and 93.1% after three year follow-up. In the TVT-O group the cough stress was negative 94.6% and 89.5%, respectively. The medium-term cure rates were similar in both groups. Complication rates were low, with no difference between the groups.

The MRI studies were carried out at the Kuopio University Hospital. By dynamic MR imaging the behavior of the mid-urethra of 15 healthy volunteers and of 40 stress urinary incontinent women was measured during different maneuvers. The dynamic MRI studies revealed a significant difference in the behavior of the mid-urethra between healthy continent women and urinary stress incontinent women. The mobility of mid-urethra of incontinent women was significantly restricted after both mid-urethral sling operations. The finding suggesting that support of the mid-urethra is important in maintaining urinary continence.

National Library of Medicine Classification: WJ 146, WJ 168, WN 185 Medical Subject Headings: Female; Finland; Follow-up Studies; Magnetic Resonance Imaging; Multicenter Study; Quality of Life; Randomized Controlled Trial; Suburethral Slings; Treatment Outcome; Urethra; Urinary Incontinence, Stress/surgery