

444 Abstracts

potential role for the endogenous peptide, and the possibility that a selective NMB antagonist may have therapeutic activity in conditions where bladder capacity is inappropriately low.

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53

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

THE INFLUENCE OF INTRATHECAL BACLOFEN ON DETRUSOR FUNCTION – A URODYNAMIC STUDY

Aims of Study: The effect of Baclofen (B.) on the striated muscle is well known, however, its effect on the detrusor resp. its clinical relevance, especially when administered intrathecally, is still under discussion. Urodynamic studies were undertaken before and after the implantation of a B.pump to objectify the influence of B. on the detrusor.

Methods: between IV/99 und XII/99 a B.pump was implanted in 6 pat.s, 23-40 yrs., mean age 25 yrs., because of severe cerebral spasticity. Preoperatively (I), between 24 and 48 hours postop. (II) and at least 10 days postop., after achieving the therapeutic drug release dosage (III), urodynamics, according to ICS-criteria, were performed: the volume at the first hyperreflexic contraction, the max. bladder capacity, the max. detrusor pressure and the residual urine were evaluated.

Results:

Volume at first contraction: (I) 143.6 cc, (II) 248.3 cc, (III) 486.2 cc, the differences between I and III, $p < 0.001$, and between I and II, $p < 0.05$, stat.significant

Max.cystometric bladder capacity: (I) 169.4 cc, (II) 270.2 cc, (III) 483 cc, the differences between I and III, $p < 0.001$, stat.significant

Max. detrusor pressure: (I) 89.0 H₂O, (II) 73.2 H₂O, (III) 31.0 H₂O, the differences between I and III, $p < 0.005$, stat.significant

Residual urine: (I) 18.2 cc, (II) 26.2 cc, (III) 69.5 cc, the differences between I and III, $p < 0.05$ stat.significant

Conclusions: B. administered intrathecally by pump delivery increases the volume at the first hyperreflexic contraction, the max. cystometric bladder capacity and the residual urine, the max. detrusor pressure decreased considerably. Therefore after implantation of a B.pump possible effects on micturition must be checked, because unbalanced voiding could occur and could cause secondary damage to the lower urinary tract. In our 6 pat.s however, despite a considerable decrease of the detrusor pressure and an increase in the max. cystometric bladder capacity the uninhibited micturition remained balanced and no further measurements were necessary. It may well be that the relaxation of the striated sphincter by B. neutralizes the weakening of the detrusor, therefore micturition may remain balanced.

54

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Variation in the Apparent Diameter of the Female Urethra: An Example of Anisotropism

Introduction: The term anisotropism is derived from the Greek words *aniso* which is to be unequal or different and the verb *tropos* meaning to turn or direct. In the context of ultrasound this term implies that

the reflective pattern may be altered by changing the angle of insonation. Sonographic anisotropism was first described by Fornage in 1987 in relation to ultrasound evaluation of normal tendons [1]. The author recognised this phenomenon as a potential pitfall encountered in the evaluation of patients presenting with suspected tendon injury [1,2].

Transvaginal and perineal ultrasound has been used to demonstrate the female urethra in women presenting with urinary incontinence [3-5]. Previous reports have noted that the female urethra and bladder neck appear patent on perineal and endovaginal [EV] sonography performed in women with stress urinary incontinence [SUI] [4-7]. Urethral ultrasound however, has not gained widespread acceptance in the evaluation of SUI as there is no clear distinction between continent and incontinent subjects [4,8,9,10].

Aim: The aim of this study was to evaluate the effect of angle of incidence of ultrasound beam on the apparent width and patency of the female urethra and bladder neck.

Methods: Seven women referred for routine pelvic ultrasound assessment from a Gynaecology Clinic (four nulliparous and three multiparous) were prospectively recruited. Each woman was questioned regarding symptoms of altered urinary continence. Translabial and EV ultrasound was performed in all cases using a linear array 6-10 MHz transducer and a 6-8 MHz EV transducer in the supine position. The appearance of the urethra was then re-assessed in all seven cases, varying the angle of the incident beam to the urethra. All women were asked to strain to assess the effect of mechanically altering the angle of the urethra in relation to the incident beam.

Results: The mean patient age was 24 years (range 22 - 43years). None of the women reported any symptoms of altered urinary continence. Translabial and EV ultrasound images obtained in the sagittal and coronal planes demonstrated the urethra as a widely patent hypoechoic funnel tapering toward the perineal surface. The bladder neck and urethral walls appeared open and unopposed in sagittal and coronal planes. The mean urethral lumen diameter (measured 1cm inferior to the bladder neck) was 5.6mm in the sagittal plane (range 4.2 - 6.5mm). Increasing the transmit power and receiver gain and reducing the median frequency produced apparent narrowing of the urethra. Altering the angle of incidence of the ultrasound beam resulted in echogenic tissue appearing within what originally appeared as an empty lumen. The bladder neck and urethral lumen appeared narrower as the angle of incidence of the beam approached 90 degrees to the long axis of the urethra. Voluntary straining resulting in alteration of the bladder neck and urethra relative to the incident beam produced a similar effect to angling the ultrasound beam. Apparent narrowing of the bladder neck and urethra was observed as the mechanical act of straining moved the urethra into a position perpendicular to the ultrasound beam.

Conclusion: Our study suggests that the appearance of a patent bladder neck may be an ultrasound artefact due to *anisotropism* rather than true bladder neck patency. Previous studies reporting bladder neck and urethral closure on straining may have been inaccurate as apparent urethral closure can be an artefact due to the urethral axis rotating on straining. We suggest that this effect should be taken into consideration when performing ultrasound evaluation of the female bladder neck and urethra particularly with regard to stress urinary incontinence.

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446 Abstracts

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55

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Title (type in CAPITAL LETTERS, leave one blank line before the text):

THE URETHRAL COLOR ULTRASOUND IMAGING IN THE DIAGNOSIS OF FEMALE INTRINSIC SPHINCTER DEFICIENCY : PRELIMINARY REPORTS

Aims of Study

The factors responsible for normal intrinsic sphincter closure are smooth muscle contractility, integrity of periurethral fascia, normal innervation and mucosal seal factors which include mucosal turgor and thickness and the vascularization of the urethra.

The urethral pressure profile (UPP) is at present the most urostatic measurement in the field of urodynamics. It is a topographic curve showing pressures along the length of the urethra. It does not, however, represent the real urethral function and, contrary to expectations, has been of limited practical value in the assessment and management of incontinence.

The aim of our study was to evaluate the feasibility of color ultrasound imaging of the urethra in association with UPP to diagnose intrinsic sphincter deficiency (ISD) in female patients.

Materials and Methods

We studied two groups of women and precisely 13 normal volunteers (mean age 29.0 years), with absence of pelvic floor disorders and without history of incontinence, and 15 incontinent patients (mean age 63.9 years), in whom an ISD had been previously diagnosed by clinical and urodynamic investigations (uroflowmetry, pressure/flow study, VLPP, static and dynamic UPP by microtransducers).

All subjects signed informed consent and underwent color ultrasound imaging with commercial digital equipment (HDI - 3000, MDI - 5000, ATL, USA) using 4-7 MHz convex and 5-12 MHz linear broad band transducers. Translabial sagittal scans of the urethra were obtained by placing the transducers directly on the external urethral meatus. The color ultrasound parameters were optimized for detection of parenchymal slow flows. Images obtained from each subject were independently examined by two sonographers who were blind to the subject's clinical status and age. The sonographers were asked to give a subjective score of the degree of urethral vascularization as follows : a) minimal or absent (1), b) poor (2), c) moderate (3), d) good (4). We compared the values of the maximum closure urethral pressure (MCUP), performed by microtransducers, of each pathologic patient with the ultrasound score. Statistical analysis, using the non-parametric Mann-Whitney rank sum test, was carried out to determine differences between ultrasound scores in the two groups.