OAB walls revealed increased severity of inflammatory cells infiltration of bladder wall (neutrophils and mononuclear cells). Compared to the control group, a single dose of CYP caused increased activity of mast cells. However, chronic administration of CYP suppressed the activity of mast cells within bladder wall. Furthermore, CYP-treated rats showed clear signs of inflammation; however the alteration of bladder histological structure depends on the mode of CYP administration. Acute model caused more severe mucosal abrasion compared to chronic one which revealed more developed haemorrhage changes within bladder wall. Additionally, in acute and chronic OAB we observed similar tissue oedema changes. Optional comparison bladder histological architecture and hyperemia degree between rats after (group I) and without (group IV) bladder catheter implantation showed no significant changes. 

Conclusions: CYP induces chemical cystitis with alteration in histological structure and inflammatory cells activity. The suppression of mast cells in chronic OAB seems to be a result of direct cytotoxic effect of CYP, as well as stems from a decrease of peripherally (within bladder) substance P release by afferent C fibres endings. Our results prove that acute model of CYP-induced cystitis in rats is more credible for further evaluation of neurogenic inflammation response in overactive bladder.

N49 Male sling operations in male urinary incontinence
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Introduction and Objectives: To assess the efficiency of the male sling operations in male urinary incontinence cases.

Material and Methods: A total 21 patients who had undergone male sling operation with urinary incontinence between January 2004 and April 2008 were enrolled to the study. Etiologic factors were radical prostatectomy in 14, TUR prostatectomy in 4, transvesical prostatectomy in 2 and traumatic urethral rupture in 1 patient. Bone sling and suprapubic sling techniques were performed to 13 and 8 patients, respectively. As sling material, we used prolen mesh in 20 patients and rectus fascial graft in 1 patient who had undergone suprapubic sling technique. In postoperative follow-up daily ped number, uroflowmetry, postvoiding residuel urine volume were assessed and UCLA/RAND examination system was used to determine the patients’ satisfaction.

Results: All patients were asked to urinate in the postoperative second day. All patients who had undergone bone sling operation urinated easily, but in 2 patients who had undergone suprapubic sling procedure acute urinary retention developed. These two patients urinated easily after the suprapubic sutures were loosen. Complete urinary continence was achieved in 17 patients (81%), whereas minimal urinary incontinence was observed in 4 patients (19%), postoperatively. The cure rates at third month and at first year follow-up were 72.7% and 66.7%, respectively. According to UCLA/RAND examination system 66.7% of the patients were satisfied with the operations, whereas 33.3% of them were not.

Conclusions: According to our clinical experiences, male sling operation seems to be a very effective surgical procedure for the male urinary incontinence and it has high success rates especially in the mild and moderate urinary incontinence cases.

N50 Associations between lower urinary tract symptoms and semen quality in ageing male
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Introduction and Objectives: Men’s increasing mean life expectancy accompanied by a trend towards higher paternal age and developments in assisted reproduction have raised interesting age-related aspects of male fertility. Several studies have recently indicated that lower urinary tract symptoms may potentially increase a risk of reduced fertility in men. The aim of this study was to investigate the relationships between semen quality and lower urinary tract symptoms (LUTS) in ageing male.

Material and Methods: A total of 210 men (aged 45–67) were investigated in this study. Clinical examination included body composition, prostate screening, genital pathologies and testicular size measured by orchidometer. All subjects filled out the International Prostate Symptom Score (I-PSS) and Chronic Prostatitis Symptom Index (NIH-CPSI) questionnaires for lower urinary tract and prostatitis-like symptoms. Blood samples were collected for hormonal, biochemical and organ-specific markers. All men were measured for total prostate volume (TPV) by transrectal ultrasonography and for urinary flow rates by uroflowmetry.

Results: The sperm concentration (median 84±106 per milliliter for all investigated men) showed a negative correlation with total prostate volume (r = −0.233, p = 0.00292). The motility of spermatozoa showed a negative correlation with IPPS (r = −0.181, p = 0.0211), NIH-CPSI pain score (r = −0.153, p = 0.0489) and us-CRP level in serum (r = −0.252, p = 0.00126). The volume of ejaculate showed a negative correlation with WBC counts in semen (r = −0.243, p = 0.00182), with PSA (r = −0.197, p = 0.012) and us-CRP level in serum (r = −0.176, p = 0.0251). Testicular size showed a positive correlation with sperm concentration (r = 0.251, p = 0.00126) and sperm motility rates (r = 0.169, p = 0.0317).

Conclusions: Our preliminary results suggest that semen pathologies and reduced fertility rates may be associated with LUTS and prostate diseases in ageing male. However, the future research should directly define the relationships between semen quality and LUTS as well as examine the treatment effect of LUTS to fertility rates in ageing male.

N51 Prevalence of asymptomatic inflammatory prostatitis in ageing male with lower urinary tract symptoms
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Introduction and Objectives: Asymptomatic inflammation as new category of prostatitis is often found during evaluation of other reproductive and prostate disorders. The aim of this study was to determine the prevalence of asymptomatic prostatitis in ageing male with lower urinary tract symptoms (LUTS).

Material and Methods: A total of 132 men (mean age 58.9±6.7 years) with LUTS (mean I-PSS 10.4±6.4) were investigated for white blood count (WBC) in expressed prostatic secretion (EPS) and post-prostatic massage urine specimen. Subjects with any clinical symptoms of inflammation were excluded. Total prostate volume, urinary flow rate and certain organ-specific, hormonal and biochemical markers were measured as well. Subjects
were divided into 2 groups: men without leukocytes and with moderate WBC count in EPS (<1×10^6 WBC/mL, group 1) and men with significant (>1×10^6 WBC/mL, group 2) counts of white blood cells in EPS.

**Results:** The prevalence of asymptomatic inflammatory prostatitis according to WHO guidelines (greater than 1×10^6 WBC/mL) was 29.5% (n = 39). When we used a lower threshold (greater than 0.2×10^6 WBC/mL) the prevalence was 61.4% (n = 81). There was statistically significant difference in PSA level (p = 0.004) and I-PSS irritative subscore (p = 0.048) for investigated groups. The WBC in EPS showed a positive correlation with PSA in serum (r = 0.331, p ≤ 0.001) and I-PSS irritative subscore (r = 0.215, p = 0.014) for all investigated men.

**Conclusions:** Our preliminary results suggest that NIH category IV prostatitis is quite prevalent in ageing male with LUTS and may be a risk factor for prostate pathologies.

### N52
**Prognostic clinical markers for asymptomatic prostatitis in ageing male with lower urinary tract symptoms**

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**Introduction and Objectives:** Asymptomatic inflammation as new category of prostatitis could be a predictive factor for lower urinary tract symptoms (LUTS). The aim of this study was to investigate the relationships between asymptomatic prostatitis and clinical markers used to diagnose LUTS in ageing male.

**Material and Methods:** A total of 132 men (mean age 58.9±6.7 years) undergoing prostate health screening were investigated for prostate-specific symptoms, white blood cells (WBC) in expressed prostatic secretion (EPS), total prostate volume, urinary flow rate and for certain organ-specific, hormonal and biochemical markers. Men with clinical symptoms of inflammation were excluded. Subjects were divided into 3 groups: men without leukocytes in EPS (<0.2×10^6 WBC/mL, group 1), men with moderate (0.2–1×10^6 WBC/mL, group 2) and significant (>1×10^6 WBC/mL, group 3) counts of white blood cells in EPS.

**Results:** We found statistical difference in PSA level (p ≤ 0.001) and Quality of Life subscore (p = 0.048) for all investigated groups. The PSA showed a positive correlation with US-CRV in serum (r = 0.6, p ≤ 0.001), WBC count in EPS (r = 0.331, p ≤ 0.001) and post-prostatic massage urine (r = 0.235, p = 0.007) and a negative correlation with maximum flow rate (r = -0.231, p = 0.009) for all investigated men. I-PSS irritative subscore showed a positive correlation with WBC count in EPS (r = 0.215, p = 0.014) and negative correlation with maximum flow rate (r = -0.199, p = 0.023).

**Conclusions:** Our preliminary results suggest that PSA may be one of the clinical markers which could be used for diagnosis of asymptomatic prostatitis in ageing male. However, the future research should directly define the critical level of PSA to diagnose asymptomatic prostatitis as well as examine the treatment effect of NIH IV category prostatitis for LUTS and PSA level in ageing male.

### N53
**The role of hyperosmolality in micturition: Physiological model of overactive bladder**

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**Introduction and Objectives:** Different types of animal overactive bladder (OAB) models were described. The cyclophosphamide (CYP)-induced OAB is still the most frequent used model. Therefore CYP-induced morphological changes can trammel the induction of the most similar animal OAB to humans. Hypertonic solutions activate the local efferent activity of bladder capsaicin-sensitive C neurons and as a consequence induce neurogenic inflammation leading to functional impairment of urinary bladder and LUTS (Lower Urinary Tract Symptoms). It suggests that this event may have some relevance in pathogenesis of OAB in which hypertonic urine may diffuse to submucosal layers and activate afferent C-fibres endings. A non-invasive hyperosmolar OAB model was established that is more physiological compared with CYP-induced OAB. In the study the intravesical impact of the hypertonic saline on bladder motor activity was assessed.

**Material and Methods:** Experiments were performed on 30 female Wistar rats. Cystometry was done after a 1 h recovery period from the surgical procedure under urethane anaesthesia. All animals were randomly divided into four groups: I: control – 308 mOsm/l, II: hypertonic – 1553 mOsm/l, III: hypertonic – 2080 mOsm/l, IV: hypertonic – 3222 mOsm/l. The measurements represent the average of five bladder micturition cycles. The following cystometric parameters were analyzed: basal (BP), threshold (TP), micturition voiding pressure (MVP); intercontraction interval (ICI); compliance; functional bladder capacity (IBC); motility index (MI); detrusor overactivity index (DOI). The Kulick’s experiment obtained that 16 h of water deprivation proved sufficient to determine urine concentrating ability of kidneys. Therefore, water deprivation for >16 h was not necessary to perform a meaningful urine concentration test. The mean urine osmolality was 2080 mOsm/l. Also the lowest and highest value observed for urine osmolality were 1553 mOsm/l and 3222 mOsm/l, respectively.

**Results:** Intravesical infusion of hypertonic saline induces OAB. The severity of OAB depends on the concentration of saline. All hypertonic infused rats did not exhibit macroscopical signs of bladder inflammation. 1553 mOsm/l saline infusion leads to increase of DOI. During 2080 mOsm/l saline infusion we observed decrease of ICI and IBC. Also increase of BP, DOI and MI. Infusion of 3222 mOsm/l saline induced utmost OAB.

**Conclusions:** Our results obtained, that hypertonic NaCl solutions within physiological osmolality range induce concentrated-dependent OAB. The 2080 mOsm/l animal hyperosmolar OAB model closely resembles the physiological micturition reflex and pathophysiology of OAB compared with CYP – induced OAB. This OAB model seems to be the less invasive, what is important for evaluating novel therapeutics to treat the OAB disorder.