

**Poster Session 2: BPH and Prostate Biopsy****Friday, 11 September 2009, 10:30-12:30****Poster room 2****N19****Autonomic nervous system activity in patients with lower urinary tract symptoms secondary to benign prostatic hyperplasia estimated by heart rate variability**K. Juszcak<sup>1\*</sup>, M. Mazur<sup>2</sup>, M. Wyczółkowski<sup>3</sup>, P.J. Thor<sup>2</sup>.<sup>1</sup>Memorial Rydygier Hospital & Jagiellonian University Collegium Medicum, Dept. of Urology & Dept. of Pathophysiology, Cracow, Poland; <sup>2</sup>Jagiellonian University Collegium Medicum, Dept. of Pathophysiology, Cracow, Poland; <sup>3</sup>Memorial Rydygier Hospital, Dept. of Urology, Cracow, Poland

**Introduction and Objectives:** Aging induces autonomic nervous system (ANS) dysfunction with increased sympathetic drive. Benign Prostatic Hyperplasia (BPH) is responsible for lower urinary tract symptoms (LUTS). The probably cause of BPH and LUTS is due to the overly active sympathetic NS. The aim of our study was to estimate the ANS activity in BPH patients with LUTS using frequency domain analysis parameters of heart rate variability (HRV). Additionally, the relationship of ANS activity to the subjective measures of LUTS, and the objective measures of BPH, as well as the biochemical and biometrical variables, were investigated.

**Material and Methods:** The study was performed on 30 men with LUTS secondary to BPH. The cohort of patients was asked to complete IPSS and quality of life questionnaires. We performed biometrical measurements (waist, hip circumference and waist-to-hip circumference ratio, body mass index, body area surface), biochemical measurements (serum catecholamine levels) and urological estimations (measurements of the prostate and transition zone of gland, uroflowmetry with post void residual volume evaluation). Additionally, a serum sample was obtained for Prostate Specific Antigen - PSA (total, free, free/total ratio) and PSA derivatives (PSA density, PSA density of transition zone) analysis. ANS activity was assessed by HRV measurements in resting conditions, after simulation with deep breathing (DB test) and by the tilt up test (TUT). In the HRV recording, frequency domain analysis parameters were calculated according to fast Fourier transformation (FFT) and the correlation for ANS activity parameters vs. BPH variables were analyzed.

**Results:** All participants presented moderate LUTS with  $Q_{ave.} = 7.4$  ml/sec. and  $PVR = 48 \pm 45$  ml. Normalized values of LF and HF were  $60.86 \pm 18.96$  [%] and  $39.14 \pm 18.96$  [%], respectively. LF/HF ratio and its normalized value were  $2.97 \pm 3.04$  [1] and  $1.57 \pm 1.40$  [1], respectively. In response to DB, significant increases of LF, LFnu, LF/HF, LF/HFnu and total power of HRV spectrum and a decrease of HFnu were observed. The E/I ratio was  $1.12 \pm 0.08$ . During the TUT, VLF, LFnu, LF/HF, and LF/HFnu were increased, while HFnu decreased. The 30/15 ratio was  $0.98 \pm 0.05$ . The observed strong correlations are as follows between:

1. prostate enlargement and HFnu and LFnu power;
2. total PSA level and LFnu, HF, HFnu;
3. free/total PSA ratio and LF/HFnu;
4. PSA density of the transition zone and HF;
5. plasma noradrenalin level and HF;
6. age and LFnu, HFnu, LF/HF and LF/HFnu;
7. plasma adrenaline level and prostate enlargement: prostate length and transition zone height.

**Conclusions:** These results demonstrate the sympathetic overactivity of ANS at rest in patients with BPH and LUTS. It is also suggested that in the pathophysiology of BPH, the heighten

activity of the sympathetic ANS, and parasympathetic drive are important.

**N20****Tamsulosin with or without serenoa repens in benign prostatic hyperplasia: The Comb TAMSR trial**D. Argirovic\*. *Clinic of Urology, Outpatient Clinic Argirovic, Urology, Belgrade, Serbia*

**Introduction and Objectives:** The Comb TAMSR trial compared one of the possible drugs combination [tamsulosin (TAM) and Serenoa repens (SR)] with TAM alone, to see if there was any difference in effectiveness and to evaluate the clinical tolerance of each in patients (pts) with benign prostatic hyperplasia (BPH).

**Material and Methods:** In this retrospective non-randomized study pts had to have  $PV < 40$  ml,  $PSA < 4$  ng/ml, IPSS score from 7 to 19,  $QOL > 3$ ,  $Q_{max}$  from 7 to 15 ml/s and  $PVR < 150$  ml. TAM (0.4 mg) was administered once a day for median period of 6 months or SR (320 mg per day)+TAM. PV and PSA were measured at selection and at end-point, whereas IPSS, QOL,  $Q_{max}$  and PVR were evaluated at baseline and later every 3 months.

**Results:** 77 pts were recruited, 70 were fully available: 38 into the TAM group and 32 into the TAM+SR group. No statistically significant difference was found between 2 groups, neither for the major end-point (change in total IPSS score between the baseline value and the final evaluation (TAM  $-4.6 \pm 3.3$  vs TAM+SR  $-4.9 \pm 2.3$ ;  $p=0.16$ ) nor for the second-end point [changes in the voiding scores  $-1.5 \pm 2.4$  vs  $-1.7 \pm 2.8$  ( $p=0.95$ ) and filing scores  $-1.7 \pm 2.8$  vs  $-1.5 \pm 2.4$  ( $p=0.92$ ) of the IPSS, improvement of QOL  $-2.1 \pm 0.8$  vs  $2.2 \pm 1.0$  ( $p=0.14$ ),  $Q_{max}$   $3.7 \pm 2.6$  vs  $4.2 \pm 2.5$  ( $p=0.38$ ), PV  $-0.2 \pm 12.8$  vs  $-0.99 \pm 20.9$  ( $P=0.27$ ), PVR  $-23.6 \pm 20.2$  vs  $-25.4 \pm 14.8$ ]. Both treatment groups showed similar but no significant changes in total PSA ( $-0.1 \pm 3.5$  vs  $-2.5 \pm 0.2$ ) and changes in sexual function score ( $0.4 \pm 3.5$  vs  $0.5 \pm 2.5$ ). During the treatment period, 10 pts (26%) managed with TAM and 5 (13%) with TAM+SR had drug related adverse reactions which included postural hypotension, dizziness, libido decrease, dry mouth, rhinitis, fatigue and asthenia. Mean improvement in IPSS was greater in men experiencing retrograde ejaculation (13%) than men who did not ( $-7.3 \pm 3.3$  vs  $-6.1 \pm 2.3$ ) ( $p=0.03865$ ) but not regarding  $Q_{max}$  ( $4.0 \pm 2.3$  vs  $3.4 \pm 2.5$ ) ( $p=0.0699$ ).

**Conclusions:** The addition of SR to TAM did not provide any significant benefit to pts. TAM can be considered as 1<sup>st</sup> line medical treatment of LUTS due to BPH.

**N21****Comparative effects of rosuvastatin and simvastatin on growth of normal prostatic epithelial cells at clinically relevant concentrations**T. Murtola<sup>1\*</sup>, H. Syvälä<sup>2</sup>, P. Pennanen<sup>3</sup>, M. Bläuer<sup>2</sup>, T. Ylikomi<sup>3</sup>, T.L.J. Tammela<sup>4</sup>. <sup>1</sup>Central Finland Central Hospital, Dept. of Surgery, Jyväskylä, Finland; <sup>2</sup>University of Tampere, Dept. of Anatomy, Tampere, Finland; <sup>3</sup>University of Tampere, Dept. of Cell Biology, Tampere, Finland; <sup>4</sup>Tampere University Hospital, Dept. of Urology, Tampere, Finland

**Introduction and Objectives:** 3-hydroxy-3-methylglutaryl CoA reductase inhibitors, statins, have been shown to inhibit the growth of normal and cancerous prostate cells, indicating their chemotherapeutic and -preventive potential to prostate cancer. Although several studies with prostate cancer cell lines have revealed inhibitory effects of supratherapeutic doses of statins to involve enhanced apoptosis and cell cycle arrest, corresponding studies with noncancerous cells have not been done. In this study we compared two different statins' (rosuvastatin and simvastatin) potency to inhibit the growth of

normal epithelial prostate cells at clinically relevant drug doses and further analyzed the underlying mechanisms.

**Material and Methods:** A prostatic epithelial cell line of noncancerous tissue origin (P96E), an in vitro transformed prostate epithelial cell line (RWPE-1) and an advanced cancer cell line (LNCaP) were used in the study. Cells were treated with vehicle, rosuvastatin or simvastatin at concentrations of 10 and 100 nM. Changes in cellular growth rate were measured after 7 days with crystal violet staining. Other analyses involved quantitation of histone-complexed DNA fragments for apoptosis and Ki-67 index for proliferation. Also changes in the expression of HMG-CoA reductase (HMGCR) and various cell cycle proteins were measured using immunoblotting and quantitative RT-PCR.

**Results:** Of the two statins tested, simvastatin was found 10-fold more potent than rosuvastatin to inhibit cellular growth of normal cells. The strongest inhibition in growth was seen with P96E cells (about 77% with 100 nM simvastatin) whereas the growth of LNCaP cells was not inhibited. Following statin treatment, a feedback upregulation of HMGCR mRNA was seen in normal epithelial cells but not in LNCaP. Simvastatin was a more potent inducer of feedback upregulation. Both statins at 100 nM induced apoptosis only slightly (<2-fold) with no major differences between cell lines. A clear decrease in Ki-67 index ( $\approx 31\%$ ) was noted in P96E after 5 days of simvastatin treatment while in RWPE-1 the decrease was only about 11%. No major differences in the expression of cyclin D1 and D3 or cyclin dependent kinase inhibitors p15, p16, p21 or p27 in P96E cells were seen after 24–96 h exposure to 100nM simvastatin.

**Conclusions:** Our results suggest simvastatin to be more potent in inhibiting normal prostate epithelial cell growth than rosuvastatin. Because rosuvastatin is known to be a more potent HMGCR inhibitor in vitro than simvastatin the reason for the difference is likely to involve differential hydrophobicity-based cellular uptake of these agents. Considering the underlying mechanisms, enhanced apoptosis seems not to be the main explanation for growth inhibition but it is likely to involve an exit of cells from active cell cycle.

## N22

### The diode laser: The new laser system for the transurethral vaporization of prostate – preliminary experience

M. Gałęski\*, A. Sikorski. Pomeranian Medical University, Dept. of Urology, Szczecin, Poland

**Introduction and Objectives:** The transurethral resection of prostate (TUR-P) and the open adenectomy still remain the “gold standards” in the treatment of BPH. In the last decade, the laser technologies began to be used in the treatment of BPH. The KTP laser (vaporization) and the holmium laser (enucleation) achieved the established status in this sphere. The diode laser (980/1470 nm), which has only been used in urology for a short time, offers simultaneous absorption in water and hemoglobin, due to which it combines high ablative and homeostatic properties. The objectives of the study is evaluation of the efficiency of the transurethral vaporization of prostate in patients with BPH with the use of a diode laser that emits two wavelengths simultaneously (980 and 1470 nm).

**Material and Methods:** 15 procedures of the transurethral vaporization of prostate with the diode laser were performed in patients with BPH. The patients were between 53 and 85 years old (av. 70). The volume of the prostate ranged from 40 ml to 93 ml (av. 58 ml). In the IPSS (International Prostatic Symptoms Score) the average number of points was 30 (15 to 35 pnt). The maximum urethral flow (Q max) from 5.1–9.1 ml/s (av. 7.7 ml/s). The average residual volume after micturition was 185 ml. (0–425 ml). The PSA value varied within the limits from 0.54 ng/ml to 3.74 ng/ml (av. 1.9 ng/ml). The average hematocrit values and

levels of hemoglobin measured before the procedure amounted to respectively 0.400 L/L and 8.74 mmol/L. The patients were examined within a week after the procedure and then in the first, sixth and twelfth month after the procedure.

**Results:** The average time of the procedure was 40 min (21–119 min). The energy used for the procedure varied within the limits of 90 kJ–247 kJ (av. 157 kJ). None of the patients needed blood transfusion. The levels of hematocrit and hemoglobin did not differ substantially from those before the procedure and amounted respectively to 0.391 L/L and 8.71 mmol/L. No ion disorders were observed in any patients after the procedure. The hospitalization after the procedure lasted for 2 days in case of all the patients. All patients had the Foley catheter removed within one day after the procedure. One patient required reinsertion of the catheter because of the acute retention of urine. There were intensive cases of irritation syndromes in most of the patients during the first two weeks which lasted for the average of 4 weeks after the procedure (from 2 to 10 weeks). One patient mentioned erection disorders which appeared after the procedure and lasted for the whole observation period. All patients reported full continence of their urine after the procedure

**Conclusions:** Our initial results of the research in progress suggest that the vaporization of the prostate with the use of the diode laser is a safe and effective procedure for treating patients with BPH.

## N23

### Lower urinary tract symptoms and their severity in men subjected to prostate biopsy due to suspicion of prostate cancer

L. Nyk<sup>1</sup>\*, J. Dobruch<sup>1</sup>, A. Borówka<sup>1</sup>, E. Modzelewska<sup>1</sup>, J. Tyloch<sup>2</sup>, B. Misterek<sup>2</sup>, E. Czupkiewicz<sup>3</sup>, E. Bres-Niewada<sup>4</sup>, E. Keller<sup>4</sup>.

<sup>1</sup>Postgraduate Medical Education Centre, Department of Urology, Central Railway Hospital, Warsaw, Poland, Dept. of Urology, Warsaw, Poland; <sup>2</sup>Collegium Medicum Copernicus University, Department of Urology, Bydgoszcz, Poland, Dept. of Urology, Bydgoszcz, Poland; <sup>3</sup>The J.biziel Hospital, Department of Urology, Bydgoszcz, Poland, Dept. of Urology, Bydgoszcz, Poland; <sup>4</sup>Medical University, Department of Urology, Warsaw, Poland, Dept. of Urology, Warsaw, Poland

**Introduction and Objectives:** Lower urinary tract symptoms (LUTS) are one of most frequent complaints among men over 50 years of age. LUTS are usually associated with benign prostate hyperplasia, however may accompany prostate cancer (PCa). Therefore, part of men subjected to prostate biopsy (Bx) usually have some degree of LUTS. The aim of the study is to evaluate prospectively the incidence of LUTS and their character in men subjected to prostate core Bx, and finally to determine whether LUTS can be used as a predictive factor of PCa discovering on prostate Bx.

**Material and Methods:** Data of men submitted to transrectal ultrasound guided multiple core biopsy of the prostate (TRUScoreBx) from 1st July 2007 to 30th July 2008 in selected departments of urology in Poland were analyzed. LUTS were measured with International Prostate Symptom Score (I-PSS).

**Results:** TRUScoreBx was performed in 747 men aged between 34 and 93 years (mean – 67.4, median – 68). Mild LUTS or no LUTS 7 I-PSS points) have been reported by 29.5% of patients. PCa was found in  $\leq 60.0\%$  of them. Among men with moderate or severe LUTS (I-PSS >7 points) PCa was found in 51.4% and 55.0% of them respectively. Median PSA was 9.5 ng/ml, 9.4 ng/ml and 12.0 ng/ml in men with mild and moderate or severe LUTS respectively (NS). However, among men with severe LUTS PCa was more likely to be locally advanced than in men with mild symptoms.

**Conclusions:** LUTS are weak predictor, if any, of positive result of core biopsy of the prostate. However, PCa is diagnosed less