

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. Nyk¹*, J. Dobruch¹, A. Borówka¹, E. Modzelewska¹, J. Tyloch², B. Misterek², E. Czupkiewicz³, E. Bres-Niewada⁴, E. Keller⁴.

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

frequently among men subjected to prostate biopsy in whom LUTS are moderate or severe. Moreover, there is a trend to diagnose locally advanced cancer more frequently in men with severe LUTS.

N24

Comparison of two simple algorithms avoiding unnecessary prostate biopsy in PSA based prostate cancer detection program

R. Adomaitis^{1*}, A. Zalimas², F. Jankevicius³. ¹Vilnius University Hospital, Dept. of Urology, Vilnius, Lithuania; ²Vilnius University, Faculty of Medicine, Vilnius, Lithuania; ³Vilnius University, Faculty of Medicine, Center of Urology, Vilnius, Lithuania

Introduction and Objectives: Lithuanian early prostate cancer detection program is targeting 50–75 years old asymptomatic men and is based on PSA cut-off value of 3 ng/ml. PSA is the main trigger for prostate biopsy (Bx). Bx is an invasive procedure and is associated with more frequent complication in elderly men. Up to 64% of patients with elevated PSA have no prostate cancer (PCa) on biopsy. Our study is looking for simple algorithm to avoid unnecessary Bx in PSA based early PCa detection program.

Material and Methods: Case histories of asymptomatic men referred to urologist in a single academic hospital due to elevated PSA in 2008 were reviewed. Data collected: patient age, PSA value, prostate volume on transabdominal ultrasound (PV), results of digital rectal examination (DRE), results of Bx. Hard or/and ruff surface of prostate on DRE were considered as suspicious for PCa. Two algorithms to avoid unnecessary Bx were checked. First: set of cut-off values suggesting avoiding Bx if all criteria are met: age ≥ 65 years, PSA ≤ 7 ng/ml, PV ≥ 50 ml, unsuspecting DRE. Second: age-adjusted PSA values (50–59, 60–69, 70–79 years respectively PSA < 3.5 , < 4.5 , < 6.5 ng/ml) and DRE.

Results: 181 patients underwent Bx due to PSA > 3 ng/ml. 76 men had PCa on biopsy (41%). Median age 65 years, median PV 45 ml and these parameters were not significantly different in men with or without PCa. In PCa group average PV was lower (45.7 ml vs 49.7 ml) and average PSA level higher (15.2 ng/ml vs 5.7 ng/ml). Applying first algorithm to our data base 20 Bx could be avoided (11%), 2 diagnosis of PCa would be missed (2.6%). Of these 2 cases 1 is on active surveillance. Applying age-adjusted PSA and DRE 37 Bx could be avoided (20%), 5 diagnosis of PCa would be missed (6.6%). Of these 5 cases 2 are on active surveillance.

Conclusions: According to our data in PSA based PCa detection program a set of cut-off values age ≥ 65 years, PSA ≤ 7 ng/ml, PV ≥ 50 ml, unsuspecting DRE could be useful and more accurate than age-adjusted PSA and DRE. Set of cut-off values may prevent considerable number of biopsies while missing few PCa. This algorithm allows avoiding Bx specifically in elderly men with moderate PSA and relatively large prostates. We acknowledge bias of small sample size in a single institution and operator-dependant results of transabdominal ultrasound and DRE. This algorithm could be easily checked or improved on data available from large scale PCa screening trials.

N25

Are sextant biopsies still justified?

D. Milonas*, A. Zabarskas, J. Masilunas, K. Kucinskas, S. Auskalis, M. Jievaltas. *University of Medicine, Dept. of Urology, Kaunas, Lithuania*

Introduction and Objectives: The aim of this study was to evaluate the usefulness of sextant biopsy for prostate cancer detection at first biopsy.

Material and Methods: All patients who had undergone sextant prostate biopsy at single institution since May 2007 to Apr

2008 were included into the study. The prostate specific antigen (PSA), total prostate volume (TPV), age and pathological report were analyzed. All patients were divided into several groups according to TPV (< 30 vs. 30–40 vs. 40–50 vs. 50–60 vs. 60–70 vs. > 70 mL), PSA (≤ 4 vs. 4–7 vs. 7–10 vs. 10–15 vs. 15–20 vs. > 20 ng/mL) and age (< 50 vs. 50–60 vs. 60–70 vs. > 70 years). Logistic regression, Shi square test and descriptive statistic were used for the analysis of prospectively collected data using SPSS 13.0 statistical analysis software for Windows.

Results: For 855 of 899 study patients sextant biopsy was performed. Median patient age was 67 (range 32–87) years, median PSA was 6.63 (range 0.43–590) ng/mL, median TPV was 42.3 (range 14.30–240) mL. Prostate cancer was detected in 311 cases and overall detection rate was 36.37%. Logistic regression analysis shows that TPV (Exp(B) 0.624 95.0% CI 0.563–0.691) and PSA (Exp(B) 1.572; 95.0% CI 1.4–1.76) are the most powerful parameters for prediction of PCa ($p = 0.0001$) at sextant biopsy. Using the formula of logistic regression, the table of probabilities for detection of the PCa at different values of TPV and PSA was composed (Table 1).

PSA/TPV	<30	30–40	40–50	50–60	60–70	>70
≤ 4.0	37.2	27.0	18.7	12.6	8.2	5.3
4.0–7.0	48.2	36.7	26.6	18.4	12.3	8.1
7.0–10.0	59.4	47.7	36.2	26.2	18.1	12.1
10.0–15.0	69.7	58.9	47.2	35.8	25.8	17.8
15.0–20.0	78.3	69.2	58.4	46.7	35.3	25.4
> 20.0	85.0	78.0	68.8	57.9	46.2	34.9

Prostate cancer detection probability using six cores biopsy varies from 26.0 to 85.0% in small and middle volume prostates (up to 50 mL). Logistic regression analysis was performed in different age groups of patients. Only for the youngest patients (up to 50 years) no significant parameter for PCa detection at first sextant biopsy was found. In other age groups PSA and TPV strongly influence such detection.

Conclusions: Our study data shows that sextant biopsy can not be recommended if prostate volume is more than 60 mL and PSA concentration less than 10 ng/mL. In such cases prostate cancer detection rate has not reached acceptable level. The sextant biopsy is still justified independently of PSA level or age in prostates up to 50 mL.

N26

Repeat prostate biopsies – when and for whom?

D. Milonas, A. Grybas*, A. Zabarskas, J. Masiliunas. *University of Medicine, Dept. of Urology, Kaunas, Lithuania*

Introduction and Objectives: The aim of this study was to identify parameters for better prediction of prostate cancer at repeat biopsies and estimate the optimal time for such sets of biopsies.

Material and Methods: All patients who had undergone prostate biopsies at single institution since May 2007 to Apr 2008 were involved into study. If previous biopsies for these patients were performed, the pathologist's data base was used. Age, prostate specific antigen (PSA), high grade prostate intraepithelial neoplasia (HG PIN), low grade prostate intraepithelial neoplasia (LG PIN), time between biopsy sets and prostate volume were chosen for evaluation of influence of these parameters on prostate cancer detection rate at repeat biopsies. Descriptive statistic, Chi-square test and logistic regression were used for analysis of our data using SPSS 13.0 statistical analysis software for Windows.

Results: 899 were involved into this study. Overall prostate cancer (PCa) detection rate was 49.27% (443 cases of 899). The PCa detection rate at 1st biopsy was 36.15% (325 of 899), at 2nd – 26.7% (81 of 303), 3rd – 21.7% (25 of 115), 4th – 24.4% (10 of 41),