concentrations in blood and needle biopsy specimens of prostate were examined by a newly developed ultra sensitive LC-MS/MS method.

METHODS: We analyzed 197 men (mean age 68 years) with a total PSA range of 3-10 ng/ml who were subjected to initial prostate biopsy for suspected prostate cancer from November 2005 to July 2007. Those patients received systematic needle biopsy, and additionally one needle biopsy from the peripheral zone was conducted for the purpose of simultaneous determination of T and DHT. T and DHT concentrations in prostate tissues and blood, determined by LC-MS/MS method. Determination limits of this method was 0.5 pg/shot for T and 1 pg/shot for DHT. Concentration of T and DHT were expressed in pg/mg. T and DHT levels in tissue and blood were compared with pathological findings by multivariate analyses.

RESULTS: Median values of PSA and prostate volume measured by ultrasound were 5.7 ng/mL and 31.4cc respectively. Median values of T and DHT in blood were 3805.5 pg/mL and 364.4 pg/mL, respectively. There was a strong correlation between serum T and DHT. Median values of T and DHT in tissue were 0.53 pg/mg and 8.40 pg/mg, respectively. Prostate cancer was diagnosed in 82 (41.6%) of those patients including 43 (21.8%) patients with a Gleason score 7-10. In multivariate analysis, patient age ($p<0.0001$), prostate volume ($p<0.0001$), and blood DHT ($p<0.01$) were statistically significant predictors of prostate cancer with Gleason score 7-10. The areas under the curve of the receiver operating characteristic curve for age, prostate volume, and blood DHT were 0.658, 0.689, and 0.638, respectively.

CONCLUSIONS: Testosterone and dihydrotestosterone concentrations in blood or prostate tissue of needle biopsy were simultaneously examined by the newly developed ultra sensitive quantifying method, LC-MS/MS. We confirmed that low dihydrotestosterone levels in blood could predict prostate cancer with a Gleason score 7-10 in men with prostate-specific antigen levels of 3-10ng/mL.

Source of Funding: Grant-in-Aid for Scientific Research

MP63-09

NOMOGRAM WITH PROSTATE-SPECIFIC ANTIGEN VELOCITY (PSAV) RISK COUNT FOR HIGH GRADE PROSTATE CANCER

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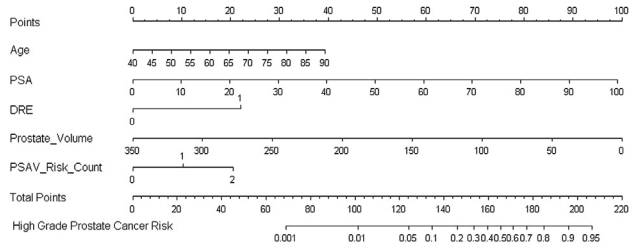
INTRODUCTION AND OBJECTIVES: Prostate-specific antigen (PSA) screening is controversial for prostate cancer detection due to its limited specificity. Several recent studies have suggested that the PSA velocity (PSAV) risk count (number of times that PSAV exceeds 0.4 ng/ml/year in a row) improves predictive accuracy for identifying high-grade disease. Since multivariable nomograms are increasingly used in prostate cancer detection, our objective was to create a nomogram including PSAV risk count to predict high grade prostate cancer (HG PCa).

METHODS: From a prospective database of 12-core prostate biopsies, we identified 410 men with 3 PSA values separated by at least 6 months and a maximum of 24 months prior to biopsy. The PSAV risk count was calculated by counting the number of times in a row that PSAV exceeded the threshold value of 0.4 ng/mL/year. Logistic regression was then used to predict HG PCa at biopsy using traditional risk factors along with PSAV risk count.

RESULTS: Of the 410 men, 117 (28.5%) were diagnosed with prostate cancer on biopsy, of which 50 (12.2%) had HG PCa. On ROC analysis, PSAV risk count had superior discrimination for PCa compared to PSA. On multivariable analysis, age, PSA, DRE, prostate volume, and PSAV risk count were all statistically significant predictors of HG PCa. A nomogram developed from the final logistic regression model findings was well-calibrated and had an AUC of 0.774 for HG PCa. On decision-curve analysis, PSAV risk count alone and particularly as part of the multivariable nomogram resulted in a greater net benefit compared to PSA.

CONCLUSIONS: PSAV risk count outperforms total PSA for the prediction of prostate cancer on biopsy. We successfully developed a nomogram to predict HG PCa including age, PSA, DRE findings, prostate volume and PSAV risk count. Although the nomogram performed well in the internal validation, additional studies are warranted in external populations to confirm the clinical utility of this predictive tool.



Source of Funding: none

MP63-10

COMPARISON OF THREE DIFFERENT RISK CALCULATOR TO PREDICT PROSTATE CANCER BEFORE BIOPSY - RESULTS FROM A RETROSPECTIVE STUDY IN ZÜRICH

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INTRODUCTION AND OBJECTIVES: Several risk calculator have been developed to predict the outcome of prostate biopsies. Which of the risk calculators perform best in Switzerland is not known. We compared the predictive accuracy of three commonly used nomograms by comparing their prostate biopsy outcome predictions with actual pathological results.

METHODS: 1885 patients who underwent a transrectal prostate biopsy between 2003 and 2012 were retrospectively analysed. Patients older than 70 years and or with a PSA level over 50 ug/l were excluded. The probability of a positive biopsy was calculated using three known risk calculator (SWOP-PRI, PCPT-CRC & Montreal). The probability of the model was compared with the actual results of the biopsy. To study statistical associations Chi-Square test, Mann-Whitney test and die Area under the Curve was used.

RESULTS: 440 (23.34 %) of 1885 patients were diagnosed with prostate cancer. Among the three risk calculators the PCPT-CRC showed the highest accuracy in predicting a positive prostate biopsy (AUC for: PCPC 0,641; SWOP-PRI 0,633; Montreal 0,609; PSA 0,564). Moreover the PCPT-CRC showed the highest accuracy in predicting high grade prostate cancer ($>=$ Gleason 7) before biopsy (AUC for: PCPC 0,733; SWOP-PRI 0,714; Montreal 0,656; PSA 0,637).

CONCLUSIONS: The external validation of three commonly used nomograms designed to predict the likelihood of a positive biopsy cancer revealed that the PCPT-CRC model was more accurate than the SWOP-PRI or the Montreal Model. Moreover the PCPT-CRC model revealed the highest accuracy to detect high grade prostate cancer. All models performed better than PSA alone

Source of Funding: none

MP63-11

IMPACT OF TIME TO UNDETECTABLE PROSTATE-SPECIFIC ANTIGEN NADIR AS A PREDICTOR OF BIOCHEMICAL RECURRENCE IN PATIENTS WITH POSITIVE SURGICAL MARGINS FOLLOWING RADICAL PROSTATECTOMY

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INTRODUCTION AND OBJECTIVES: Positive surgical margin (PSM) status following radical prostatectomy (RP) is an independent predictor of biochemical recurrence (BCR); however, not all patients with PSMs later develop BCR. Herein, we aimed to determine the impact of time to undetectable prostate-specific antigen (PSA) nadir for predicting BCR in patients with PSMs following RP.