Bladder and Prostate Cancer

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IN VITRO ELECTROMOTIVE ADMINISTRATION OF MITOMYCIN C IN HUMAN BLADDER WALL.

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Adjuvant intravesical mitomycin C (MMC) therapy for superficial bladder cancer has been shown to decrease the one-year recurrence rate by 2-43% and Ta tumours appear to respond more favorably than T1 (Herr, J. Urol., 1987). Experimental studies showed that inhibitory MMC concentrations are achieved in the urothelium (Ta tumours) in 100% of cases, in the lamina propria (T1 tumours) in 20% and in the muscle layer (T2 tumours) in about 17% (Wientjes, Cancer Res., 1991). The aim of these investigations is to establish the tissue concentrations of MMC following passive diffusion (PD) and electromotive administration (EMDA) into human bladder wall samples. Sections of human bladder were inserted into a two chamber diffusion cell. The urothelium was exposed to the donor compartment (MMC 10 mg in 100 ml 0.24% saline) containing an anode and the serosa to the receptor compartment (100 ml 0.9% saline) containing a cathode. EMDA experiments were performed with pulsed current of 5 mA for 15 min. No electric current was applied in PD control experiments. MMC in samples was measured by HPLC analysis. The concentrations of MMC were determined in 15 paired experiments (30 bladder samples). The total (71,075 ng) and the mean (4,738 ng) quantities of MMC transported into tissue samples by EMDA significantly exceed the respective amounts (30,763 ng and 2,051 ng) administered by PD and similarly with wet tissue concentrations (22,923 ng/g and 1,528 ng/g versus 9,271 ng/g and 618 ng/g). In conclusion, EMDA enhances MMC penetration into the bladder wall and the method can be utilized generally for intravescical pharmacological studies.

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INTERMEDIATE ANALYSIS AT MINIMUM 5 YEARS FOLLOW-UP OF 70 PATIENTS WITH PROSTATE CANCER TREATED BY EXTERNAL BEAM AND BRACHYTHERAPY

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Objectives: The combined transrectal ultrasound (TRUS) guided HDR-Brachytherapy (BT) and external beam treatment for nodal negative prostate cancer was introduced 1986 in our department.
Material and methods: 181 patients (pts.) with prostate cancer were treated by combined Brachy- and Teletherapy from 1986 to 1995. 70 pts. of those had a longer follow-up than 60 months (mean 76.3 months ranging from 5 to 9 years). The therapy protocol included 2 fractions of BT with ^{192}Ir (each 15 Gy), which were integrated in the teletherapy schedule. The HDR-BT was planed and applied using a template and based on TRUS-Volumetry of the prostate with the possibility of conformal treatment planing. The total dose was 50 Gy for subclinical disease and a boost of 30 Gy by HDR-BT for the prostate.
Results: Systemic progression was found in 11 pts. (16 %), local progression in 2 pts.(3%) and both in 2 other pts. (3%). The 4 pts. out of 70 (6%) with local recurrence were according to the UICC-classification in T_{3c}-Stage (3 pts.), and T_{2b}-Stage (one pt.) respectivelly. All 4 pts. had tumors grade III (Mostofi). Late side effects: proctitis (grade III) in 3/70 pts., grade I/II in 15 % as well as cystitis grade III in 3/70 cases and I/II in 24 %.
The present data seems to be in favour of the Kiel method particularly in locally advanced and highgrade tumors.

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TISSUE POLYPEPTIDE SPECIFIC ANTIGEN (TPS) - A HORMONE- INDEPENDENT MARKER FOR TUMOR ACTIVITY IN ANDROGEN - TREATED PROSTATE CANCER (PC)

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Since PSA-based monitoring does not always reflect the course of disease, we performed serial TPS determinations (n=3882) in 443 hormone-treated PC patients (mean follow up: 22 months).
Results: TPS was significantly associated with tumor activity (p=0.001) independent of androgen treatment modality and tumor load, even in very dedifferentiated , PSA negative PC. After second line therapy of hormone-resistent PC a decrease in TPS levels correlated well with both palliative response (p=0,001) and progression free suvival time (p<0.0001). 89,7% of patients with >50% drops in TPS within 4 weeks of therapy achieved subjective stabilization or even improvement, compared to only 64% of those with equivalent drops in serum PSA.
Conclusions: TPS provides hormone- and PSA-independent information on new treatment decisions in hormone treated PC.

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THE CORRELATION BETWEEN PEPSINOGEN II IMMUNOREACTIVITY, ULEX EUROPAEUS STAINING AND SURVIVAL IN PATIENTS WITH PROSTATE CANCER.

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Pepsinogen II (PGII) is produced by epithelial cells of the central prostate zone; the latter cells can be selectively identified through staining with lectins such as Ulex Europaeus (UEA-I). Previous studies have suggested that, in prostate cancer, PGII or its daughter compounds may be abnormally expressed and that UEA-I may bind to peripheral zone cells. The object of this study was to determine whether these two parameters are correlated with survival in patients affected with prostate cancer. Tissue was obtained from 54 consecutive radical prostatectomy patient (group A) and 45 with prostate cancer who underwent TURP (group B). Avidine-Biotin-Peroxidase staining was used to identify PGII and UEA-I lectin was employed to identify central zone epithelial cells. Mean follow-up times in the two groups were 58 and 53 mos. respectively. Twelve patients (22%) in group A and 36 patients (81%) in group B died from prostate cancer. PGII staining and UEA-I positivity were both frequent in low-stage tumors. UEA-I positivity were significantly correlated with better survival (p 0.05) with no correlation between PGII expression and survival was observed.