

Salvage brachytherapy for local recurrences of prostate cancer treated earlier with radiotherapy

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Purpose: Radiation therapy for localized prostate cancer is a standard option of treatment. Local recurrences (biochemical and clinical) occurred in about 50% (depending on the initial stage and other prognostic factors). Usually local recurrences have ominous prognosis. The standard treatment is hormone therapy.

Material and methods: In MSC Memorial Cancer Center and Institute of Oncology, Gliwice Branch, a researched program on salvage HDR brachytherapy for local recurrences of prostate cancer treated earlier with radiotherapy has been opened since February 2008. Eligibility criteria: confirmed local recurrence after treatment for localized prostate cancer at least 2 years ago (transrectal ultrasound or MRI of the prostate, bone scan for occult metastases, biopsy of the prostate for histopathological confirmation of the recurrences). The earlier treatment were mainly external beam radiation but patients treated with external beam radiation with boost from brachytherapy are not excluded. Exclusion criteria was the same as for any HDR brachytherapy of prostate (volume > 60 cm³, TURP within 6 months, infiltration of the external sphincter of the bladder neck, significant urinary obstructive symptoms, pubic arch interference, lithotomy position or anesthesia not possible). HDR brachytherapy was delivered using an Iridium-192 stepping source (MicroSelectron™, Nucletron NV). Treatment planning was performed intra-operatively. Needle applications were performed during spinal anesthesia. The treatment consisted of 3 fraction 10 Gy each given every 14 days. The dose was specified on

the prostate capsule or 2-3 mm from it (depending on clinical case). Generally homogenous needle distributions were applied with planned hot-spot in case of visible tumor. Maximal urethral doses (calculated at the centre of each urethral outline each 5 mm) were constrained to be 120% of prescribed dose. Maximal bladder and rectum doses were constrained to be 70% of prescribed dose.

Results: Fifteen patients eligible were treated and analyzed from February 2008. All patients completed the treatment without major complication. The most common early complication were: macroscopic hematuria, pain in lower part of the abdomen, transient dysuria. During the first week after the procedure transient increase in IPPS score were noticed. A Foley catheter was removed on day 2nd to 5th. No complication after spinal anesthesia were observed. Acute toxicity according to EORTC/RTOG was low. For bladder EORTC/RTOG score was ranking from 0 to 2. Only in two patients grade 1 toxicity for rectum was observed. The follow up range from 4 to 14 months. In all patients early toxicity ceased quickly after treatment (lasting up to 3 weeks). No late toxicity were observed so far. In all patients but one decrease in PSA level were observed (one patients developed metastases in bones).

Conclusions: Salvage brachytherapy for localized prostate cancer (10 Gy every 14 days) seems to be safe and well tolerated procedure. The efficiency of the procedure is yet to be established.