Neoadjuvant combined microwave induced local hyperthermia and topical chemotherapy versus chemotherapy alone for superficial bladder cancer


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Purpose: We evaluated the effectiveness of local bladder hyperthermia and intravesical chemotherapy compared to intravesical chemotherapy alone in the treatment of superficial transitional cell carcinoma.

Materials and Methods: A new system designed to deliver simultaneously local bladder hyperthermia and intravesical chemotherapy has been developed at our institute. The system consists of a computerized 915 MHz microwave source that directly heats the bladder walls (within a temperature range of 42.5 to 45.5°C) using a transurethral catheter. From February 1989 to December 1993, 52 patients 44 to 81 years old (mean age 64.3) with superficial stages Ta to T1, grades 1 to 3 transitional cell carcinoma of the bladder were selected for neoadjuvant intracavitary treatment. Tumors were left intact as marker lesions. Of the patients 29 were randomly assigned to receive combined neoadjuvant intravesical chemotherapy and local hyperthermia (group 1), while 23 received intravesical chemotherapy alone (group 2). The treatment protocol included multiple sessions performed on an outpatient basis. Mitomycin C (40 mg in 50 cc distilled water) was used for intravesical chemotherapy in both groups. All patients underwent transurethral resection of residual tumors and of all suspicious areas 7 to 10 days after completion of treatment. Only a complete response was considered for statistical analysis. Results: A pathological complete response was documented in 19 cases (66%) in group 1 and 5 (22%) in group 2 (chi-square p< 0.01). Conclusions: According to these preliminary data, microwave induced hyperthermia combined with local intravesical chemotherapy seems to be a feasible, safe and promising approach for neoadjuvant and minimally invasive treatment of superficial bladder cancer.

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