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The Role of Conductive Hyperthermia with Mitomycin C in High Risk Non Muscle Invasive Bladder Cancer that has Failed BCG Therapy

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Introduction and objective: The standard management of high risk non muscle invasive bladder cancer (HR NMIBC) is BCG intravesical therapy with radical cystectomy (RC) reserved for BCG 'failures', a term that encapsulates all patients who are either intolerant to or unresponsive to BCG or who relapse following treatment. However there remains a significant group of patients who are unfit for or unwilling to undergo RC. Until recently therapeutic options in such patients were limited and included re-exposure to further BCG or endoscopic management. We report our experience of the use of conductive hyperthermia in the management of patients with HR NMIBC who have are unfit for or have refused RC.

Materials and Methods: Patients with BCG 'failure' who were deemed unfit for or unwilling to undergo RC were referred to a tertiary bladder cancer referral centre. Patients underwent an induction therapy with a 6-week course of weekly hyperthermic mitomycin (HT-MMC) using a conductive heating system heated to 43 degrees centigrade for 1 hour. If the patient tolerated the induction course and were disease free at follow up cystoscopy they went on to have maintenance HT-MMC at 3 monthly intervals for one year.

Results: Over a 26-month period a total of 26 patients with HR NMIBC were referred for HT-MMC. Mean age was 73.5 (Range 59-82). 1/3 of patients had CIS. 18 patients were BCG relapsed, 4 patients were BCG intolerant and 4 patients were referred during the BCG shortage. 60% of patients completed the full induction course of 6 HT-MMC treatments. The mean treatment length was 55 minutes and the mean number of HT-MMC treatments was 5.2. The commonest side effects were Bladder spasm in 5 (20%) and Skin rash in 5 (20%).In the BCG relapse group of 18 patients, with a median follow up of 19 months, 3 patients had been lost to f/up and one patient had died of unknown causes. 12 patients remained recurrence free giving an overall response rate of 66%. In the BCG intolerant group of 4 patients with a median follow up of 26 months, 3 patients remained recurrence free giving an overall response rate of 75%. In the BCG naive/shortage group of 4 patients with a median follow up of 19 months, 3 patients remained recurrence free giving an overall response rate of 75%.

Conclusions: Conductive hyperthermia with MMC seems an effective option in patients who have are intolerant to or relapsed on BCG therapy who are unfit or unwilling to undergo RC. Randomised trials are required to evaluate this promising option further.