
Hyperthermic Intravesical Chemotherapy for BCG-Unresponsive Non-Muscle Invasive Bladder Cancer Patients

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Introduction and objective: Adjuvant intravesical instillations with Bacillus Calmette-Guerin (BCG) is the recommended treatment option for patients with intermediate and high-risk non-muscle invasive bladder cancer (NMIBC). Despite adequate BCG treatment, a large proportion of patients experiences a recurrence. Although radical cystectomy is the Gold Standard for BCG-unresponsive NMIBC, a number of patients are unfit for or unwilling to consider this option. The optimal therapy in such cases is unknown. The objective of the present study was to assess the efficacy of hyperthermic intravesical chemotherapy (HIVEC™) in BCG-unresponsive intermediate and high risk NMIBC patients.

Methods: From October 2014 to July 2017 NMIBC patients who were defined BCG-unresponsive (recurrence of high-grade disease after having had a minimum of 5/6 induction and 2/3 maintenance BCG instillations) were prospectively included at three academic institutions. All patients were planned to receive HIVEC™ treatment, consisting of an induction phase followed by maintenance therapy. Only patients who had a minimum of 5 HIVEC™ instillations were included in the present analysis. Patients were followed by cystoscopy and cytology every three months and a CT-scan yearly. The primary outcome was the recurrence free survival (RFS). The Common Terminology Criteria for Adverse Events (CTCAE) was used to assess side-effects.

Results: The study population consisted of 59 BCG-unresponsive NMIBC patients (8% intermediate and 92% high risk) of whom 55 underwent ≥ 5 HIVEC™ treatments. Histology was urothelial carcinoma in all patients and T-stage was pTis in 31, pTa in 10, pT1 in 9, pT1+CIS in 3 and pTa+CIS in two patients. The median age and follow-up was 72 years and 9.0 months (IQR 7.1 - 19.5). The overall recurrence rate was 58% and the mean RFS was 16.6 months [SE 2.1]. In patients having carcinoma in situ (n= 36), the recurrence rate was also 58% and the mean RFS was 16.2 months [SE 2.8]. Progression occurred in 3 patients and two patients experienced severe side-effects (CTCAE >2).

Conclusions: HIVEC™ seems a valid treatment option for BCG-unresponsive intermediate - or high-risk NMIBC patients. We report a mean RFS of > 1 year, potentially avoiding or postponing the need for radical surgery in these patients.