INTRAVESICAL CHEMOTHERAPY FOR LOW GRADE BLADDER CANCER: A COST ANALYSIS

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Objective:
Intravesical chemotherapy has been demonstrated to delay recurrence in low-risk non-muscle invasive bladder cancer (LR NMIBC). Mitomycin C has been the most commonly utilized agent in this setting but recently the SWOG S0337 randomized trial reported that gemcitabine reduced recurrences. We therefore assessed the cost-effectiveness of these agents in LR NMIBC.

Methods:
A state transition model was developed to simulate the management of men diagnosed with LR NMIBC. At the time of initial diagnosis, men were hypothetically treated with intravesical gemcitabine, intravesical mitomycin or no intravesical therapy. We then modelled the natural history of disease for a time horizon of five years and superimposed guideline-based surveillance and treatment strategies. Recurrence and progression rates were informed from the literature and primary data from the SWOG S0337 trial. Costs were calculated from the health sector perspective using 2018 US dollars and effectiveness was measured in quality-adjusted life years (QALYs).

Results:
Comparison to no intravesical therapy at the time of initial transurethral resection for low-risk NMIBC, Gemcitabine treatment improved quality-adjusted survival by 2.16 months and reduced costs by $2,694.30. Mitomycin C also improved survival by 0.84 months and decreased costs by $517 relative to no intravesical treatment but was not cost-effective compared to Gemcitabine. On sensitivity analysis, the hazard ratio of Gemcitabine for recurrent disease had to be less than 0.87 for it to remain the superior treatment strategy compared to no treatment. If the hazard ratio for Mitomycin C is less than 0.65 then it becomes the preferred strategy.

Conclusions
Intravesical chemotherapy has been demonstrated to delay recurrence in low-risk non-muscle invasive bladder cancer (LR NMIBC). Mitomycin C has been the most commonly utilized agent in this setting but recently the SWOG S0337 randomized trial reported that gemcitabine reduced recurrences. We therefore assessed the cost-effectiveness of these agents in LR NMIBC.