UROLOGICAL ONCOLOGY

The EORTC tables overestimate the risk of recurrence and progression in patients with non-muscle-invasive bladder cancer treated with bacillus Calmette-Guérin: external validation of the EORTC risk tables

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Background: European Organization for Research and Treatment of Cancer (EORTC) risk tables only included 171 patients treated with bacillus Calmette-Guérin (BCG) for non-muscle-invasive bladder cancer (NMIBC).

Objective: To evaluate the external validity of the EORTC tables in patients with NMIBC treated with BCG over 5-6 mo.
Design, Setting, and Participants: Data on 1062 patients treated with BCG were analyzed.
Measurements: Discrimination was assessed using the concordance index (c-index) and the prognostic separation index (PSEP). For calibration, probabilities of recurrence and progression obtained with the EORTC risk tables in our series were compared with those reported by the EORTC.
Results and Limitations: With respect to the discriminative ability of the EORTC model, c-index was similar to those reported in the EORTC series for recurrence. However, c-indices for progression in our series were lower than c-indices reported by Sylvester et al. [1]. Although PSEP in our series was lower than in the EORTC series for recurrence at 1 yr, similar results were found at 5 yr. Regarding progression, PSEP in our series was lower than in the EORTC series. Whilst a successful stratification of recurrence and progression probability at 1 and 5 yr was achieved using the EORTC tables in our series, model calibration showed lower risks of recurrence than those reported by Sylvester et al. [1] in all groups. For progression, lower risks were found in higher-risk groups. There are some limitations in the present study. A different distribution of patients was found, with higher proportions of primary grade 3 T1 tumors and tumors in situ than in the EORTC series. An additional limitation is that prior recurrence of the EORTC table was not included in our parameters. Consequently, two separate analyses were performed for recurrence.
Conclusions: The EORTC model successfully stratified recurrence and progression risks in our cohort. However, the discriminative ability of the EORTC tables decreased in our patients for progression. Moreover, these tables overestimated risks of recurrence and progression after BCG therapy.

Editorial Comment

EORTC risk tables and the related calculator at http://www.eortc.be/tools/bladdercalculator are widely used tools to estimate the risk of recurrence and progression in patients with non-muscle invasive bladder cancer (NMIBC). The underlying database consists on EORTC trials on NMIBC mostly on intravesical chemotherapy before the era of BCG. Therefore, an external evaluation in a different population, and, ideally, with more modern therapy such as BCG, was highly desirable. The CUETO group from Spain evaluated these risk tables in a cohort of patients from 4 own trials, all using BCG. Several conclusions can be drawn from this external validation of the EORTC risk tables. First, the risk tables can be used to assess recurrence and progression in different populations. Second, and even more important to my opinion, the EORTC models overestimated the risk of recurrence and on progression in comparison the real-life CUETO data using BCG therapy, meaning that the Spanish population treated with BCG fared better than the European population mostly treated with intravesical chemotherapy. This can be indirectly be interpreted as a large-population based proof of the success of BCG therapy against recurrence and against progression in high-risk patients.

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