External validation of the Grade, Age, Nodes and Tumor (GRANT) score for patients with surgically treated papillary renal cell carcinoma

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Objective:

Stratifying the risk of recurrence for surgically treated papillary renal cell carcinoma (pRCC) could be challenging. Prognostic models are crucial for patient counselling, individualized surveillance, and identifying potential candidates for adjuvant therapy. The GRANT score is one of the models suggested by European Association Urology (EAU) guidelines to predict prognosis of surgically treated pRCC. This study aims to externally validate the GRANT score using a three-risk group stratification in a large cohort of pRCC patients.

Methods:

The present analysis utilized retrospective data from pRCC patients who underwent radical or partial nephrectomy, as collected by Wagener et al. [PMID: 28934212]. The GRANT score parameters included tumor grade, age, pathological T-stage, and N-stage. Patients were stratified into three risk groups (0-1 *vs*. 2 *vs*. 3-4 risk factors). Cancer-specific survival (CSS) was assessed using the Kaplan-Meier method, and differences between groups were evaluated using the log-rank test. Harrell's c-index was used to measure model accuracy, and restricted mean survival time (RMST) was calculated for up to 120 months.

Results:

A total of 1,942 patients were analysed. The median follow-up was 64.6 months. Patients aged > 60 years comprised 58% of the population, and 75.6% were male. At 60 months, CSS was 93.2% (95%CI 91.7%-94.6%) for group 1, 60.8% (95%CI 54.0%-78.6%) for group 2, and 26% (95%CI 15.7%-42.9%) for group 3, with significant differences between each group ($p < 0.001$). The median CSS was not reached for group 1 (95%CI NR-NR), 86.0 months in group 2 (95%CI 65-NR), and 22.8 months in group 3 (95%CI 16.4-48.0), **Figure 1**. The c-index for CSS was 0.732. The RMST at 120 months was 113.3 months for group 1, 75.9 months for group 2, and 56.6 months for group 3, resulting in a statistically significant difference ($p < 0.001$).

Conclusions:

The GRANT score effectively stratified surgically treated pRCC patients into three risk groups with significant differences in CSS, demonstrating good prognostic accuracy. This validation supports the GRANT score's utility as a reliable and easy-to-use tool for predicting prognosis in surgically treated pRCC patients.
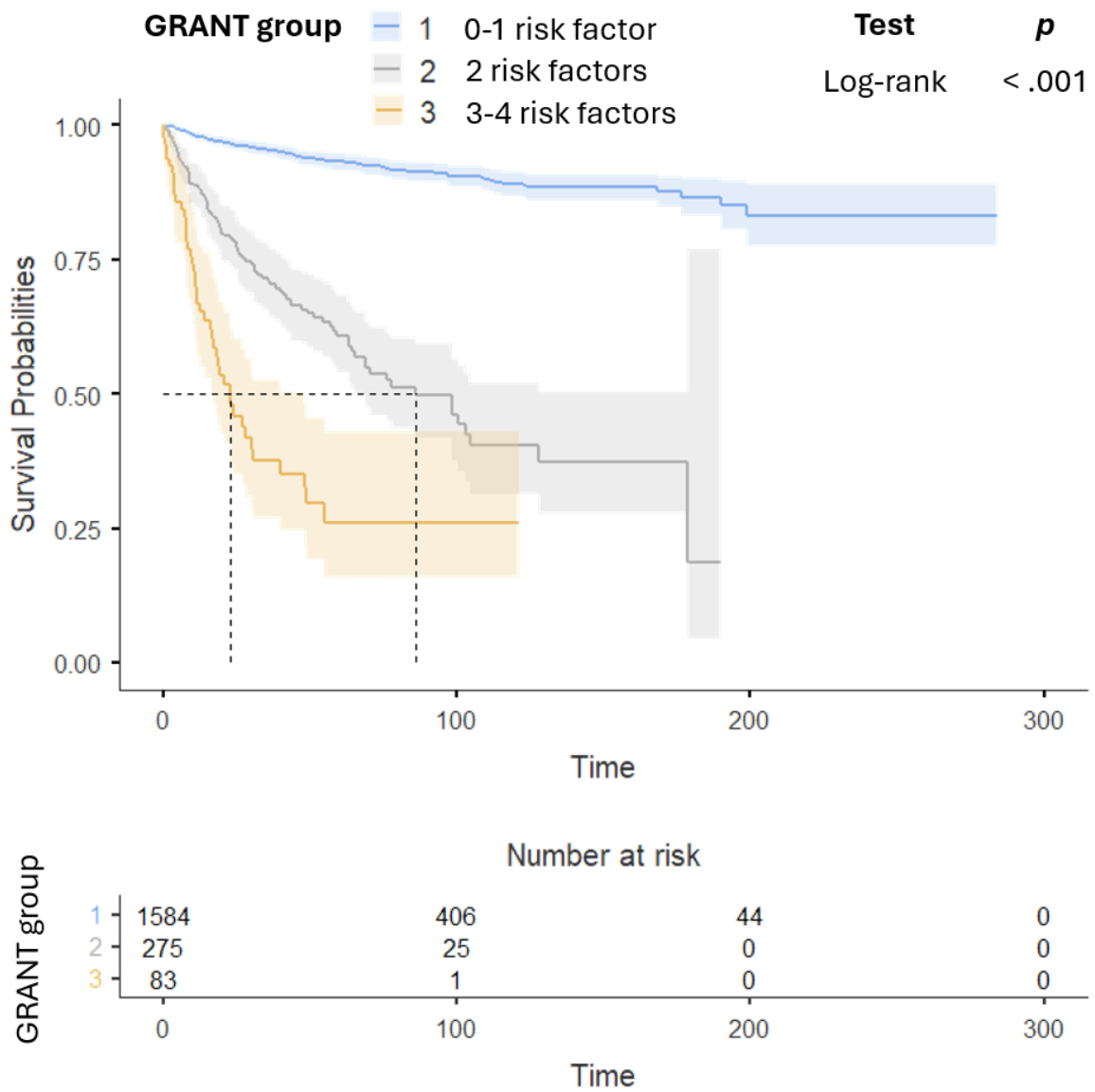
Figure 1. Kaplan–Meier curves for cancer-specific survival in each GRANT group.

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