THE TUMOUR SUPPRESSOR RHOB IS AN INDEPENDENT PROGNOSTIC FACTOR FOR METASTASIS IN URINARY BLADDER CANCER

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Introduction & Objectives: Rho members may affect the process of tumourigenesis either by over-expression of some members of the family with oncogenic activity or by down-modulation of other members with suggested tumour suppressor activity.

Materials & Methods: Rho gene mRNA expression was studied in 77 bladder cancer (BC) specimens. The Kaplan-Meier method was used to estimate survival as a function of time, and survival differences were assessed by the Log-rank test. Logistic regression (univariate and multivariate) analysis was performed to determine the potential predictors of survival, recurrence and metastasis.

Results: The cases whose tumours exhibited increased levels of RhoB mRNA expression exhibited worse overall and cancer-specific survival rates, than those expressing decreased RhoB mRNA levels. Moreover, those cases whose tumours exhibited high Cdc42 mRNA expression showed a worse overall survival rate than those expressing low Cdc42 levels. High RhoC levels tended to correlate with better survival. Although univariate analysis, using the Cox proportional hazards model, showed that RhoB has a tendency for being an independent prognostic factor for overall survival (p=0.086), both univariate and multivariate analysis for RhoA, RhoC, Rac1 and Cdc42 did not exhibit the same tendency. Moreover, no gene was identified as independent prognostic factor for tumour recurrence. Finally, both univariate and multivariate analysis identified RhoB independent prognostic factors for metastasis (p=0.012 and p=0.050, respectively).

Conclusions: Our results confirm a tumour suppressor role for RhoB in bladder cancer, opposing the positive functions of RhoA and RhoC. Moreover, our analysis identified RhoB as an independent prognostic factor for metastasis.