Frequency and Clinic-Pathologic Correlate of FOXP3 Immunoreactivity in Human Urothelial Carcinoma

Introduction and Objectives: To investigate the frequency and clinicopathological correlates of FOXP3 immunoreactivity in human upper UC (UUC) and bladder cancer (BC).
Materials and Methods: Tumor specimens from 208 UC patients were examined for FOXP3 expression using immunohistochemistry, as well as eight urothelial cancer cell lines using western blotting assay. The results obtained were correlated with clinicopathological parameters and clinical outcome in UUC and BC patients, respectively, including tumor prothymosin-α (PTMA) expression.
Results: Three of eight UC cell lines expressed FOXP3 protein, including 5637, TSGH830, and HT1376 cells, as well as 30 of 133(22.5%) BCs and 22 of 75 (29.3%) UUCs, in which all the FOXP3 immunostaining in tumors cells were expressed in the cytoplasm. Overall, there is lack of any correlate or prognostic value in UC except for gender ratio. However, superficial BCs with FOXP3 expression exhibited a longer recurrence-free survival than those without FOXP3 expression (p = 0.0349). In addition, FOXP3expression in lymphocytes could be detected in 10 of 133 BC patients, including 2 in negative PTMA-expressing tumors, 7 cytoplasmic, and 1 nuclear (non-nuclear PTMA *versus* nuclear PTMA, p = 0.02) .
Conclusions: FOXP3 expression is expressed in the cytoplasm of around 20-30 % UC. Despite of the lack of any clinicopathological correlate in UC patients, FOXP3 tumor expression in superficial BCs is a favorable prognostic indicator for the recurrence. Moreover, FOXP3(+) lymphocytes is mainly detected in non-nuclear PTMA-expressing BCs. The underlying mechanisms involved the FOXp3 localization and correlation with PTMA were worthy to explore.