Speckle Type POZ Protein (SPOP) as a Biomarker in Renal Cell Carcinoma

Introduction and Objective: A search for reliable tumour marker in renal cell carcinoma is on. In recent study speckle type POZ protein (SPOP) was highly expressed on immunohistochemistry staining in more than 95% of Clear Cell Carcinoma. Treatment of patients with metastatic RCC using mTOR inhibitors has limitations. It is effective in a small proportion of the patients and has side effects. Therefore it is desirable to monitor the response of therapy with tumour marker. The present study was conducted to evaluated SPOP and mTOR in blood and tissue sample from patients with RCC.

Materials and Methods: Blood sample were collected from 44 patients of RCC and 10 healthy volunteers. Tumour tissue and normal looking renal tissue were collected separately from the nephrectomy specimen of the patients with RCC. Normal tissue was also collected from 5 nephrectomy specimen from patients of renal trauma. Gene expression of SPOP and mTOR at mRNA level was evaluated by RT-PCR. Statistical analysis was performed by one-way ANOVA.

Results: A significantly high gene expression of SPOP was observed in tumour tissue as well as in blood of patients with RCC as compared to controls ($p \leq 0.001$ and $p \leq 0.05$) respectively. Patients with high grade of RCC had high expression of SPOP. Gene expression of mTOR in blood was not significantly different in patients with RCC as compare to controls. However in tumor tissue the expression of mTOR was significantly higher as compared to normal renal tissue ($p \leq 0.001$).

Conclusion: SPOP is a promising biomarker in RCC. Measurement of its expression in blood may also be helpful in monitoring the response of therapy with mTOR inhibitors in cases of metastatic RCC.