

## *Abstract*

Except testicular tumors and prostate carcinoma, there is lack of tumor markers in urogenital tumors. Carbonic anhydrase IX protein (CA IX) is a cell membrane protein, which can be ectopically expressed in various human tumors. It is often expressed as a response of tumor cells to hypoxia, which escalates invasivity of the tumor. In consequence, CA IX was proposed as a marker of poor prognosis. Its presence was proved by immunohistochemistry in renal cell carcinoma (RCC) and transitional cell carcinoma (TCC) of urinary tract.

We study CA IX as a possible tumor marker. Presence of CA IX protein in tumor tissue was examined by immunohistochemistry, in serum and urine CA IX concentrations by immunoprecipitation of CA IX followed by Western blotting in combination with enhanced chemiluminescence or ELISA.

From our results we proved positive concentrations of soluble CA IX (s-CA IX) in 74,3% serum and in 63,3% urine samples in RCC group. In TCC group s-CA IX was positive in 69,6 % urine samples. Serum concentrations were all negative in this group. There was rapid decrease of s-CA IX concentration in serum after surgical removal of tumor with half-time 1-2 days. s-CA IX is not detectable in blood and urine in healthy volunteers.

In these days s-CA IX is not suitable marker of RCC and TCC. Nevertheless, the present data supports the view that measuring s-CAIX levels in urine may be a useful tool for monitoring patients after resection or another therapy for tumor recurrence. This will require development of a simple, rapid, and versatile method for s-CA IX detection in body fluids.

**Keywords:** Renal cell carcinoma, transitional urinary carcinoma, carbonic anhydrase IX