

IMPACT OF TYROSINE KINASE INHIBITORS ON VOLUMETRIC REDUCTION OF THE PROSTATE AND LOWER URINARY TRACT SYMPTOM IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA: A RETROSPECTIVE STUDY.

Hypothesis / aims of study

It is well known that lower urinary tract symptoms (LUTS) in males are influenced by blood supply to the bladder and prostate as well as prostatic size. Tyrosine kinase inhibitors (TKIs) have taken a central position on systemic chemotherapy for metastatic renal cell carcinoma (RCC). TKIs reduce tumor size via the inhibition of vascular endothelial growth factor (VEGF) receptor and angiogenesis. The aim of the present study is to investigate whether TKIs would act for or against the prostate and LUTS.

Study design, materials and methods

We retrospectively examined medical records of all patients with metastatic RCC treated with TKIs in Yamagata University Hospital. 23 male patients were selected in accord with inclusion criteria for a single and first TKI treatment, no prior history of any systemic therapies other than surgery before TKI administration, and therapy duration with a certain TKI longer than 3 months continuously. On helical computed tomogram (CT) at a 1mm collimation, prostatic volume for each patient was measured by integration of every section of the prostate at 1mm thickness of CT scanning images. International prostate symptom score (IPSS) was determined for evaluation of LUTS of the patients.

Results

Mean age, prostatic size, IPSS and QOL scores of the patients were 65.4 years, 39.0ml, 7 and 2.15 points before TKI treatment, respectively. TKIs were sorafenib for 8 cases, sunitinib for 12, axitinib for 1 and pazopanib for 2. Mean therapy duration with a single TKI was 330.4 days (110 to 700 days). Volume of the prostate was reduced to 34.3ml (88 %) on average after TKI treatment ($p < 0.001$ vs. before TKI therapy, Wilcoxon signed rank test). LUTS did not get worse in any of the patients but one, who had clean intermittent self-catheterization introduced for management of progressive and chronic urinary retention after sunitinib therapy got started.

Interpretation of results

The results demonstrate that TKIs would reduce prostatic size mildly after about 1-year long administration, and that TKIs could have negative impact on voiding function rarely. Considered from the main mechanisms of TKI action, inhibition of VEGF receptors in the bladder and prostate might possibly lead to endothelial damage, local ischemia, and finally detrusor underactivity. The present study was based upon small cases indeed, but further investigation would be needed for confirmation of our results.

Concluding message

The clinical finding that the prostate would be downsized with long-term TKIs therapy may provide a clue to new strategies for treatments of prostatic diseases in the future.

Disclosures

Funding: We had no funding or grant about the present research **Clinical Trial:** No **Subjects:** HUMAN **Ethics not Req'd:** The ethics committee at our institution has not required the approval about clinical retrospective studies if protocols of the studies get out of the general rules taken by the ethics committee. The present study is with accordance to the general rules. **Helsinki:** Yes **Informed Consent:** Yes