A PHASE 1B STUDY OF SAFETY AND PRELIMINARY EFFICACY OF EXTRACRANIAL STEREOTACTIC BODY RADIATION THERAPY IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA TREATED WITH SYSTEMIC THERAPY

**BACKGROUND**

- Historically, renal cell carcinoma (RCC) has been considered one of the most radiosensitive tumors with the main mechanisms of its sensitivity to conventional radiation doses: the intrinsic resistance of cancer cells and the tumor microenvironment related factors [1, 2].
- Patients with low or high disease burden, that is why we have designed a prospective phase 1b “Volga” study to determine the safety and efficacy of extracranial SBRT in combination with TKI and IO in patients with metastatic RCC.

**METHODS**

- Patients were included if they had stable disease for at least 4 months on TKI or CI. SBRT was administered using multiple comparable lesions, where one lesion was in the treatment target (target lesion) and the other lesion was intentionally left untreated (control lesion).
- Response in both target and control lesions was scored using RECIST 1.1 criteria at least 2 months after completion of SBRT.
- Primary endpoint was the threat of adverse events of SBRT and secondary endpoints included a change in target lesion size and time to progression of the first (target) and the second (control) lesions.

**RESULTS (1)**

- Between November 2016 and April 2019, 17 patients were enrolled in the phase 1b study. SBRT was delivered to an organ with multiple comparable lesions, where one lesion was in the treatment target (target lesion) and the other lesion was intentionally left untreated (control lesion).
- In 5 (29%) patients and partial response in 8 (47%) including abscopal effect in 1 (6%) patient.
- Fraction size of equal to or greater than 10 Gy was associated with complete response in the target lesion.

**RESULTS (2): TOXICITY**

- Toxicity was 12% (n=2), consisting of esophagitis (n=1) and skin erythema (n=1).
- CT scan at 2 months (December 2017) showed that both target and control lesions were stable, however, next examination in March 2018 demonstrated partial regression in not only irradiated focus but in all lung and mediastinal metastases up to 50% from their initial size.

**RESULTS (3): EFFICACY**

- Stable disease was observed in 15 (88%) patients.
- No grade 2 or higher toxicity was detected.

**CONCLUSION**

Extracranial SBRT in patients with mRCC treated with TKI or CI is well tolerated and could be effective. This approach will be studied in an expanded cohort of patients.