

ANALYSIS OF ANTI-ANGIOGENESIS-RELATED ADVERSE EVENTS ASSOCIATED WITH VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR-TYROSINE KINASE INHIBITORS (VEGFR-TKIS) IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA

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Background and importance

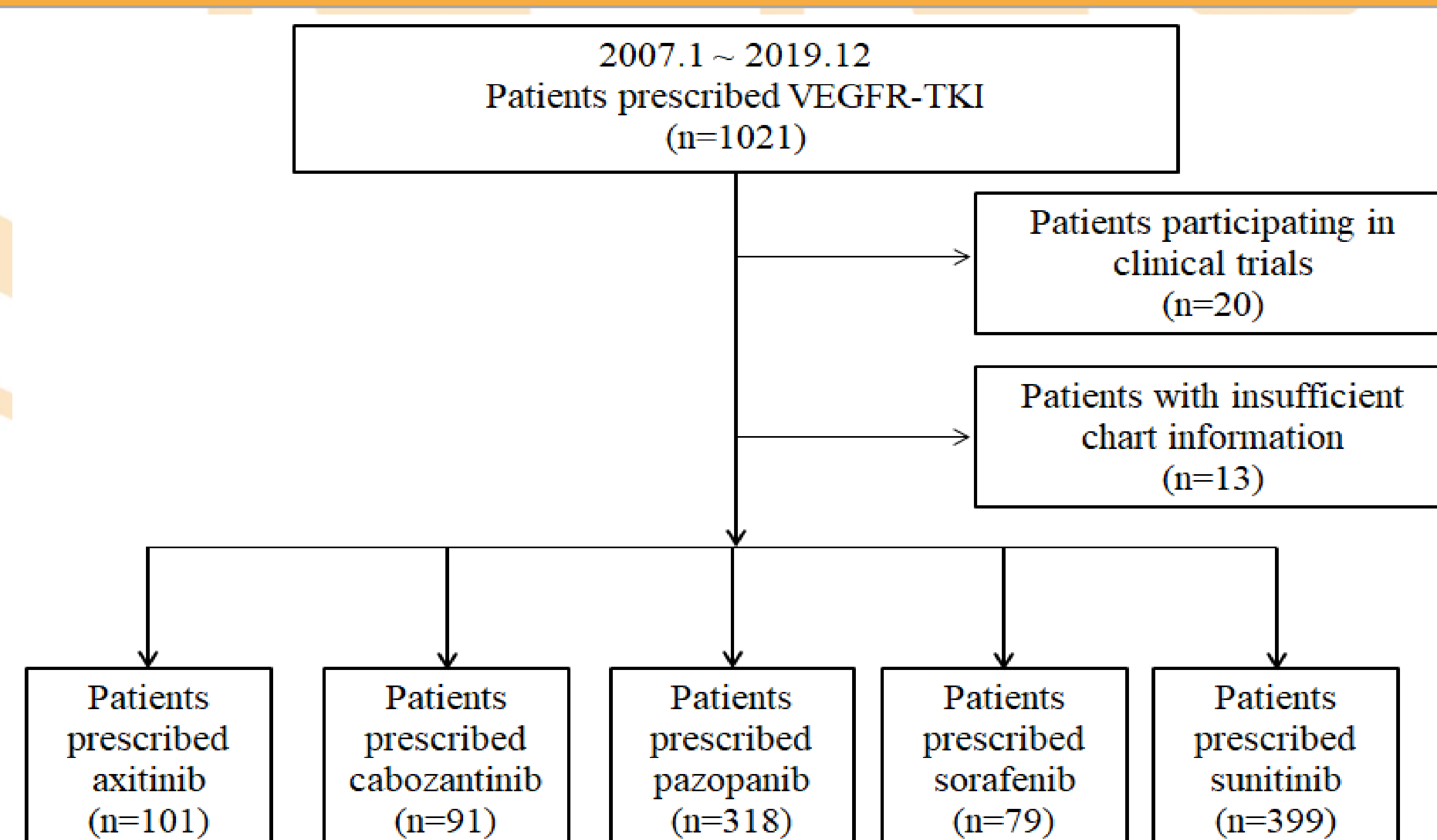
Angiogenesis inhibitors represent an important treatment option for patients with cancer. The vascular endothelial growth factor (VEGF) pathway plays an important role in the physiological function and homeostasis of the cardiovascular and kidney systems, resulting in anti-angiogenesis-related adverse events (AEs). Limited studies have evaluated anti-angiogenesis-related AEs involving vascular endothelial growth factor receptor-tyrosine kinase inhibitors (VEGFR-TKIs) using real-world data, which may provide important evidence for drug choice and monitoring in the treatment of metastatic renal cell carcinoma.

Aims and objectives

This cross-sectional study aimed to investigate the incidence and patterns of anti-angiogenesis-related AEs associated with the use of vascular endothelial growth factor receptor-tyrosine kinase inhibitors (VEGFR-TKIs) in patients with a metastatic renal cell carcinoma using real-world data.

Materials and methods

This study was conducted on 988 patients aged 18 years or older with a diagnosis of metastatic renal cell carcinoma who received axitinib, cabozantinib, pazopanib, sorafenib, and sunitinib between January 2007 and December 2019. Anti-angiogenesis-related AEs were rated “possible” or higher on the WHO-Uppsala Monitoring Center (WHO-UMC) causality assessment scale. The severity of AEs was graded using the CTCAE v.5.0. To compare the incidence of AEs associated with different VEGFR-TKIs, we divided the enrolled patients into those who had not previously received a VEGFR-TKI (VEGFR-TKI-naïve) and those who had previously received a VEGFR-TKI (VEGFR-TKI-experienced).



Results

Anti-angiogenesis-related AEs of any grade occurred in 65.1% of VEGFR-TKI-naïve patients and 54.8% of VEGFR-TKI-experienced patients. In addition, AEs of grade 3 or higher occurred in 34.6% of VEGFR-TKI-naïve patients and 36.0% of VEGFR-TKI-experienced patients. Regardless of treatment history, the most common AE was hypertension. For VEGFR-TKI-experienced patients, the overall rate of anti-angiogenesis-related AEs for sorafenib (24.3%) was lower than that for other VEGFR-TKIs. Female gender and high blood pressure were risk factors for VEGFR-TKI-associated AEs.

Conclusion

More than half of patients with renal cell carcinoma receiving VEGFR-TKI experienced anti-angiogenesis-related AEs. Any grade of AEs occurred more frequently in VEGFR-TKI-naïve patients, while severe AEs occurred more frequently in VEGFR-TKI-experienced patients.

