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Nivolumab versus cabozantinib: Comparing overall survival in metastatic renal cell carcinoma

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The present study aims to compare overall survival (OS) in metastatic RCC (mRCC) between nivolumab and cabozantinib from two recent pivotal studies comparing, respectively, each one of the two emerging treatments against everolimus in patients who relapse following first-line treatment. Comparison is traditionally carried out using the Bucher method, which assumes proportional hazard. Since OS curves intersected in one of the pivotal studies, models not assuming proportional hazards were also considered to refine the comparison. Four Bayesian parametric survival network meta-analysis models were implemented on overall survival (OS) data digitized from the Kaplan-Meier curves reported in the studies. Three models allowing hazard ratios (HR) to vary over time were assessed against a fixed-HR model. The Bucher method favored cabozantinib, with a fixed HR for OS vs. nivolumab of 1.09 (95% confidence interval: [0.77, 1.54]). However, all models with time-varying HR showed better fits than the fixed-HR model. The log-logistic model fitted the data best, exhibiting a HR for OS initially favoring cabozantinib, the trend inverting to favor nivolumab after month 5. Numerical differences in study-adjusted OS estimates between the two treatments remained small. This study evidences that HR for OS of nivolumab vs. cabozantinib varies over time, favoring cabozantinib in the first months of treatment but nivolumab afterwards, a possible indication that patients with poor prognosis benefit more from cabozantinib in terms of survival, nivolumab benefiting patients with better prognosis. More evidence, including real-world observational data, is needed to compare effectiveness between cabozantinib and nivolumab.

Biography

Helene Karcher is the Managing Vice-President and Global Head of Real-World Modeling at LASER Analytica, a cutting-edge population health consultancy with operations in 8 countries. She develops and coordinates LASER's offer in analytics, and has 15 years of experience in quantitative methods applied to impact decisions in health care as an Academic, a Drug Developer, a Start-up Board Member, and a Consultant. In particular, she gained hands-on Drug Development experience in roles of increasing responsibility at Novartis from discovery to market launch. She holds a Physics degree from Ecole Polytechnique, France and a PhD in Computer Science and Biology from MIT, USA.

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