Introduction

(References are not formatted in the document.)

Methods

The NMA update was based on a systematic literature review (SLR) that was conducted by Birmingham et al. on March 19, 2019 following the NICE guidelines to identify relevant randomized controlled trials (RCTs) involving first-line treatments for previously untreated advanced RCC. The interest of the literature review was priority of treatment (OS) and/or progression (PFS). The results were divided into five categories:

- Reliability efficacy was estimated based on hazard ratio (HR) and evaluated using Bayesian probabilities, in line with the previous NMA and using methods based on the NMA algorithm.
- The models were run in WinBUGS with three chains with a burn-in of 100,000 iterations. Inferences were based on 10,000 further iterations for the fixed effects and random effects models.
- Two sensitivity analyses were carried out:
  - For PFS, the Motzer 2013 study was excluded from the main analysis and included in a sensitivity analysis, as the study only reported HR in the intermediate (instead of previous) and progression survival between comparator arms.
  - For OS, the Motzer 2014 study was included in the main analysis and excluded in a sensitivity analysis, as the HR for the comparison of temsirolimus vs. sorafenib was not defined. The only separated results (HRs) were aggregated in the main analysis.

Results

Systematic literature review

A total of 87,916 citations were captured from the electronic search. After removal of the duplicates, 4,478 citations remained. Excluding the publications not meeting the selection criteria, 72 publications were identified relevant. The NMA was not supported by the data available on the NMA. The PRISMA diagram of the SLR is reported in Figure 3.

Discussion

This study followed NICE guidelines to conduct the SLR and the NMA. There was available evidence to derive a network for the comparisons most commonly used in clinical practice.

For sunitinib, limited information on PFS was available in the network, leading to no further treatment recommendations. For OS, nivolumab was superior to sorafenib in terms of survival benefit.

Conclusions

- Nivolumab plus ipilimumab was found to be numerically more effective than all comparators and significantly improved OS compared to five comparators: sunitinib, interferon, bevacizumab plus interferon, temsirolimus plus interferon and sorafenib.

References