Background

- Epidermal Growth Factor Receptor (EGFR) mutations are found in 10-20% of Caucasian patients and 30-60% of Asian patients.
- TKIs, including gefitinib, erlotinib, afatinib, and others, are effective in patients with EGFR mutations.
- Unfortunately, some patients who initially benefit from targeted therapies develop resistance within 12 months of treatment.

Aims

- We systematically reviewed published clinical evidence to assess the effectiveness of available agents (alone or combined) in EGFR-mutated NSCLC and contacted a meta-analysis.

Methods

- Multiple databases were searched up to June 2017. The search strategy included MEDLINE, EMBASE, CINAHL, and other databases.
- Eligibility criteria: randomized controlled trials (RCTs) comparing TKI versus chemotherapy in patients with EGFR-mutated NSCLC.
- Outcomes: PFS, OS, ORR, HR in the TKI arm versus the chemotherapy arm.
- The Cochrane Library was searched for clinical trials adding TKIs to standard chemotherapy.

Results

- Five of nine studies reporting progression-free survival (PFS) showed significant improvement compared to chemotherapy in people of Asian descent.
- In three studies, the median PFS for TKI was 27 months versus 16 months for chemotherapy.
- In one study, the 12-month PFS was 74% in the TKI arm versus 34% in the chemotherapy arm.
- The rate of grade ≥3 adverse events was 12% in the TKI arm versus 22% in the chemotherapy arm.
- The rate of grade ≥3 neutropenia was 4% in the TKI arm versus 33% in the chemotherapy arm.
- The rate of grade ≥3 anemia was 1% in the TKI arm versus 15% in the chemotherapy arm.
- The rate of grade ≥3 thrombocytopenia was 1% in the TKI arm versus 5% in the chemotherapy arm.
- The rate of grade ≥3 diastolic blood pressure increase was 0% in the TKI arm versus 2% in the chemotherapy arm.

Conclusions

- Although several therapies tested in RCTs showed a significant improvement in PFS, none demonstrated OS benefit in patients with EGFR-mutated NSCLC.

Limitations

- The results obtained in the SLR and the remaining MAHIs are limited to those available in the published domain.

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