Efficacy and Safety of Bevacizumab Plus Chemotherapy Versus Chemotherapy Alone in the Treatment of Non-Small Cell Lung Cancer (NSCLC) in Asian Patients: A Systematic Review and Meta-analysis

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Objective: To evaluate the efficacy and safety of bevacizumab plus chemotherapy versus chemotherapy alone for the treatment of NSCLC in Asian patients.

Material and Methods:
- Literature searches were conducted in MEDLINE, the Cochrane Library, and clinicaltrials.gov. No language or date restrictions were imposed.
- In addition, references of included studies were searched for relevant studies.
- All randomized controlled trials (RCTs) examining the efficacy and safety of bevacizumab plus chemotherapy in adult patients with histologically confirmed NSCLC in Asian patients were included.

Outcomes:
- Primary: Response rate and disease control rate.
- Secondary: Progression free survival and adverse events.
- Two authors independently selected papers, extracted data and assessed quality.
- Study quality of included trials were assessed using the Cochrane Risk of Bias Tool.

Results:
- A total of 4 RCTs involving a total of 652 patients were included in this meta-analysis.
- A total of 386 patients received bevacizumab, and a total of 266 patients received comparators.
- Overall, the risk of bias of included trials was low.
- Leukopenia and neutropenia were most common haematological adverse events observed with bevacizumab.

Discussion:
- Vascular endothelial growth factor A (VEGF) is a potent proangiogenic growth factor that stimulates the proliferation, migration, and survival of endothelial cells.
- As one of the more important proteins also expressed by tumor cells, VEGF is an important target of anticancer therapy.
- Bevacizumab is a humanized anti-VEGF monoclonal IgG1 antibody.
- In combination with chemotherapy, it is approved for the treatment of advanced colorectal cancer, advanced non-small cell lung cancer, metastatic breast cancer, and advanced renal cell cancer.
- As a single agent, it is approved for second-line treatment of advanced glioblastoma multiforme.
- Bevacizumab is currently indicated in combination with platinum-based chemotherapy in the first-line treatment of untreated, advanced, metastatic or recurrent NSCLC with non-squamous cell histology.
- Bevacizumab is the only anti-angiogenic agent approved for the first-line treatment of NSCLC.
- Various studies have concluded that treatment with bevacizumab in selected patients with NSCLC was effective in terms of PFS (progression free survival) and OS (overall survival).
- Common adverse events observed during treatment with bevacizumab include hypertension, nephrotic syndrome, bleeding, gastrointestinal perforation, heart failure and neutropenia.
- Exclusion criteria where bevacizumab is not indicated for usage include squamous histology of lung cancer, and the presence of hemorrhage.

Conclusion:
Bevacizumab plus chemotherapy is associated with significant improvement in overall response rate, disease control rate, and progression free survival when compared to chemotherapy alone among patients with NSCLC.

References:

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