

Irinotecan and S-1 Combination in Non-Small Cell Lung Cancer: Efficacy and Toxicity: A systematic review and meta-analysis

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Abstract

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Abstract

Background: Globally, non-small cell lung cancer (NSCLC) is the primary cause of cancer-related mortality. The effectiveness of the available drugs is still insufficient. As a result, individuals with NSCLC require more treatment strategy optimization. The purpose of this meta-analysis (MA) study is to assess a novel salvage chemotherapy regimen for patients with non-small cell lung cancer (NSCLC) by combining irinotecan with S-1.

Methods: We systematically searched the PubMed, Cochrane Library, Scopus, Embase, and Web of Science databases for relevant studies. The main outcomes were overall survival (OS), progression-free survival (PFS), and Response rate. We used OpenMeta[Analyst] software to conduct this single-arm MA adhering to Cochrane guidelines.

Results: We included nine single-arm studies involving 267 patients in our meta-analysis. The pooled mean OS (mOS) was 12.5 months (95% CI, 8.219 - 16.86), and the pooled mean PFS (mPFS) was 3.7 months (95% CI, 2.94 - 4.59). The response rate (RR) was 0.195 (95% CI, 0.099 - 0.290). Adverse events (AEs) were assessed across different grades, with varying incidences observed. Among grade 4 AEs, neutropenia had the highest incidence at 0.065 (95% CI, 0.022 - 0.108), followed by anemia at 0.018 (95% CI, 0.00 - 0.037), diarrhea and anorexia both at 0.013 (95% CI, -0.002 - 0.028), and nausea at 0.012 (95% CI, -0.004 - 0.029). Moving to grade 3 AEs, diarrhea was the most common at 0.079 (95% CI, 0.034 - 0.124), followed by neutropenia at 0.107 (95% CI, 0.040 - 0.174), anorexia at 0.101 (95% CI, 0.045 - 0.158), anemia at 0.057 (95% CI, 0.017 - 0.098), and thrombocytopenia at 0.025 (95% CI, 0.005 - 0.046). In grade 2 AEs, neutropenia was predominant at 0.143 (95% CI, 0.082 - 0.204), followed by diarrhea at 0.123 (95% CI, 0.038 - 0.208), and thrombocytopenia at 0.025 (95% CI, 0.005 - 0.046). Lastly, grade 1 AEs were characterized by thrombocytopenia with the highest incidence at 0.257 (95% CI, 0.118 - 0.396), followed by diarrhea at 0.223 (95% CI, 0.130 - 0.315), neutropenia at 0.039 (95% CI, 0.007 - 0.071), and leukopenia at 0.016 (95% CI, -0.001 - 0.034).

Conclusions: The combination of irinotecan with S-1 is an effective therapeutic schedule with acceptable and manageable efficacy and toxicity in patients with NSCLC. More high-quality and well designed studies with large sample sizes and a comparator are warranted to further validate our findings and compare this treatment strategy with other approaches.