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Oral administration of herbal medicines for radiation pneumonitis in lung cancer patients: A systematic review and meta-analysis

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Background: Radiation pneumonitis is a common and serious complication of radiotherapy. Many published randomized controlled studies (RCTs) reveal a growing trend of using herbal medicines as adjuvant therapy to prevent radiation pneumonitis; however, their efficacy and safety remain unexplored.

Objective: The aim of this systematic review is to evaluate the efficacy and safety of herbal medicines as adjunctive therapy for the prevention of radiation pneumonitis in patients with lung cancer who undergo radiotherapy.

Methods: We searched the following 11 databases: three English medical databases [MEDLINE (PubMed), EMBASE, The Cochrane Central Register of Controlled Trials (CENTRAL)], five Korean medical databases (Korean Studies Information, Research information Service System, KoreaMed, DBPIA, National Digital Science Library), and three Chinese medical databases [the China National Knowledge Database (CNKI), Journal Integration Platform (VIP), and WanFang Database]. The primary outcome was the incidence of radiation pneumonitis. The risk of bias was assessed using the Cochrane risk-of-bias tool.

Results: Twenty-two RCTs involving 1819 participants were included. The methodological quality was poor for most of the studies. Meta-analysis showed that herbal medicines combined with radiotherapy significantly reduced the incidence of radiation pneumonitis (n=1819; RR 0.53, 95% CI 0.45–0.63, I^2=8%) and the incidence of severe radiation pneumonitis (n=903; RR 0.22, 95% CI 0.11–0.41, I2=0%). Combined therapy also improved the Karnofsky performance score (n=420; WMD 4.62, 95% CI 1.05–8.18, I^2=82%).

Conclusion: There is some encouraging evidence that oral administration of herbal medicines combined with radiotherapy may benefit patients with lung cancer by preventing or minimizing radiation pneumonitis. However, due to the poor methodological quality of the identified studies, definitive conclusion could not be drawn. To confirm the merits of this approach, further rigorously designed large scale trials are warranted.

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