

Pharmacological interventions for the prevention of esophagitis associated with lung radiation: a systematic review and meta-analysis of randomized controlled trials

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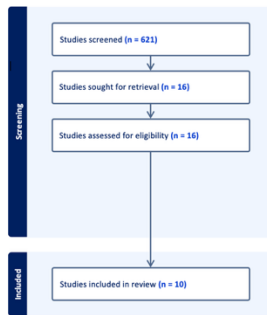
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INTRODUCTION

- ❖ Esophagitis is a common side effect in patients undergoing lung radiation
- ❖ Symptoms can include pain and difficulty that may impede oral intake
- ❖ **OBJECTIVE:** To summarize the current literature on strategies to prevent radiation-induced esophagitis in lung cancer

METHODS

- ❖ PubMed (Medline), EMBASE and Cochrane Library databases were searched from inception to February 2026 for prospective randomized controlled trials of adult patients with pharmacological intervention to prevent esophagitis in thoracic radiation



- ❖ Pooled analyses of proportions were conducted for studies with the same intervention for grade 3+ esophagitis using the binary random effects model as applicable

No generative AI tools were utilized in the execution of this research or the creation of this poster

Study	Country	Sample Size	Lung Criteria	Radiation	Endpoints
Amifostine					
Antonadou (2001)	Greece	146	NSCLC/SCLC	55-60Gy/30#	Esophagitis, Acute Lung Toxicity, Incidence of Pneumonitis/Fibrosis, Response (per WHO Criteria)
Antonadou (2003)	Greece	68	NSCLC Stage 3 with Chemotherapy	55-60Gy/30#	Esophagitis, Acute Lung Toxicity, Incidence of Pneumonitis/Fibrosis, Toxicities, Response (per WHO Criteria)
Leong (2003)	Singapore	48	NSCLC Stage 3 with Chemotherapy	64Gy	Esophagitis, Neutropenia, Response
Komaki (2004)	United States of America	62	Inoperable NSCLC Stage 2 or 3 with Chemotherapy	69.6Gy/58#	Esophagitis, Pneumonitis, Toxicities, Survival, Local Failure, Distant Metastasis
Movsas (2005)	Israel	242	Inoperable NSCLC Stage 2 or 3 with Chemotherapy	60Gy	Esophagitis, Toxicities, Quality of Life, Survival
Amifostine/Epoetin-a					
Han (2008)	South Korea	71	SCLC Limited with Chemotherapy	45Gy/30#	Esophagitis, Toxicities, Response (per WHO Criteria), Survival
Indomethacin					
Nicotopoulos (1985)	Greece	28	Inoperable Lung Cancer	30Gy/15#	Endoscopic Esophagitis, Esophageal Symptom Onset, Severity of Esophageal Symptoms
Naproxen					
Soffer (1994)	United States of America	26	Lung Cancer	30Gy/10# or 40-50Gy/25#	Endoscopic Esophagitis, Esophagitis Symptoms
Glutamine					
Chang (2019)	China	60	NSCLC Stage 3 or 4 with Chemotherapy	30Gy/15#	Esophagitis, Onset of Esophagitis, Weight Change, Survival
Sodium Alginate (SA)					
Ninomiya (2021)	Japan	94	NSCLC Stage 3 with Chemotherapy	--	Esophagitis, Toxicities, Patient-Reported Outcomes, Response (per RECIST Criteria), Survival

Pooled Analysis of Grade 3+ Esophagitis

Amifostine

23%

95% CI: 10-36%

I²=82.6%

N=228

5 trials

Control

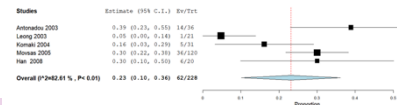
42%

95% CI: 14-70%

I²=95.2%

N=213

4 trials



- ❖ Four trials including 3 using amifostine and 1 using glutamine demonstrated statistically significant benefit of the pharmacological intervention in reducing esophagitis for the study primary outcome
- ❖ Two trials reported patient reported outcomes or quality of life, both of which demonstrated no difference between treatment arms
- ❖ Eight trials reported survival or treatment response outcomes, all of which showed no difference between trial arms.

DISCUSSION/CONCLUSION

- ❖ Previous clinical trials have investigated the role of amifostine, indomethacin, naproxen, glutamine, sodium alginate and epoetin-alpha in preventing radiation-induced esophagitis in lung cancer
- ❖ Pooled analysis demonstrates promising results for amifostine