

STRATEGIES FOR PREVENTING AND MANAGING RADIO-INDUCED ESOPHAGITIS IN LUNG CANCER THERAPY

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Introduction. Radiation-induced esophagitis is a common complication of lung cancer radiotherapy, resulting from mediastinal exposure. This exposure activates inflammatory m-RNAs, such as IL-1, TNF-alpha, and IFN-gamma, leading to apoptosis, DNA damage, and mucosal injury. It presents either acute (within three months) or late-phase (more than three months, occasionally up to a year). Effective treatment is essential for preserving the patient's quality of life.

Aim of the study. This study aims to evaluate strategies for preventing and treating radiation-induced esophagitis in patients undergoing radiotherapy for lung cancer.

Materials and methods. The study included 15 male patients with an average age of 66.3 years, all diagnosed with Non-Small Cell Lung Cancer (NSCLC). They were treated with Volumetric Modulated Arc Therapy (VMAT) at Grodno City Clinic Hospital No.03 between March and September 2024. Treatment regimens varied based on tumor location, stage, and complications. Seven patients were treated with conventional fractionation, while five received hypofractionated regimens due to significant comorbidities. Radiation doses ranged from 60 Gy to 66 Gy.

Results and discussion. Despite preventive measures such as Proton Pump Inhibitors (Esomeprazole), H2 Receptor Antagonists (Ranitidine), and Antacids (Almagel A), all patients developed some level of esophagitis. For RTOG grade 1, 2, and 3, Esomeprazole was combined with Almagel A. Additionally for RTOG grade 3, Ranitidine, Almagel A, and local anesthetic (Lidocaine) were administered intravenously and orally respectively. International studies also have identified several pharmacological treatments. A study from Japan found that a combination of Polaprezinc, Sodium Alginate, and Aluminium-Magnesium Hydroxide significantly reduced the progression of grade 2 or higher esophagitis. In Canada, Amifostine and Glutamine were shown to help prevent esophagitis escalation in some patients. Studies in Spain and China confirmed the efficacy of Glutamine and Granulocyte-Macrophage Colony Stimulating Factor (GM-CSF), respectively. In China, GM-CSF treatment resulted in a 90.32% efficacy rate, improving patients from grade 3 to grade 1 or

2 esophagitis. Additionally, herbal remedies like Baimudan root and Epigallocatechin-3-gallate (EGCG) from green tea have been explored as alternatives to traditional treatments.

Conclusion. Despite the use of Proton Pump Inhibitors and antacids from the start of radiotherapy, all patients developed varying degrees of esophagitis. Central tumors tended to cause more severe cases, with atelectasis and worsened symptoms. Esophagitis generally appeared after a median radiation dose of 18-21 Gy. While no single treatment is universally effective, studies on agents like Glutamine, GM-CSF, and Polaprezinc, along with analgesics and certain herbal remedies, show promise in reducing the severity of radiation-induced esophagitis.

ЛИТЕРАТУРА

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PREVENTION AND TREATMENT OF RADIO-INDUCED ESOPHAGITIS DURING LUNG CANCER TREATMENT

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