



Evidence-Based Series #7-14-3: Section 1

The Role of Radiation Therapy in Malignant Pleural Mesothelioma: A Clinical Practice Guideline

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Question

What is the role of radiation therapy (RT) in the management of malignant pleural mesothelioma?

Target Population

This evidence-based series applies to adult patients with malignant pleural mesothelioma.

Recommendations

The lack of sufficient high-quality evidence precludes definitive recommendations being made. Instead, the Lung Cancer Disease Site Group (Lung DSG) offers the following opinions based on the evidence reviewed:

- There is limited evidence for the role of radiotherapy in the management of patients with malignant pleural mesothelioma.
- There is inconsistent evidence and no consensus among the radiation oncologist in the Lung DSG for the use of prophylactic external beam radiation therapy to tracts caused by thoracic drainage tubes or thoracic diagnostic procedures. For this reason, a recommendation could not be made for this treatment. The decision to use prophylactic external beam radiation therapy to tracts must therefore be based on an individualized case assessment.
- Radical radiation therapy alone should not be offered as a curative treatment option to patients with malignant pleural mesothelioma, based on the currently available evidence.
- Palliative radiation therapy may offer short-term symptom control in terms of chest pain; however, long-term control has not been demonstrated to date.
- Future studies including radiotherapy for the treatment of patients with malignant pleural mesothelioma should include formal measures of quality of life (QOL) and symptom control.

Key Evidence

- There are no randomized trials comparing radical or palliative radiation therapy to the primary (pleural) lesion to no treatment or best supportive care for patients with malignant pleural mesothelioma.
- Three small randomized controlled trials compared prophylactic external beam radiation therapy (EBRT) to no radiation therapy for patients with thoracic tracts caused by drainage tubes or diagnostic procedures. One randomized trial reported a significant reduction in the frequency of malignant seeding of tracts for the radiation therapy arm (0% of 20 patients) compared to the control arm (40% of 20 patients), $p < 0.001$. A second randomized trial reported preliminary results from 12 patients and found more procedure tract metastases in the EBRT arm than the control arm, however no p-value was reported. The third randomized trial did not detect a statistically significant difference in procedure tract metastases between treatment arms. A pooled analysis found no significant reduction in the frequency of procedure tract metastases. None of those trials reported any serious adverse effects due to radiation therapy.
- A poll was conducted among the radiation oncologist in the Lung DSG to determine the pattern of practice for prophylactic RT to drainage sites. There was no consistent consensus on the use of prophylactic RT, a reflection of the lack of high-quality data from the small randomized trials available.
- Four noncomparative studies have shown that hemithoracic irradiation alone resulted in significant toxicity, including radiation-induced pulmonary fibrosis, radiation pneumonitis, and bronchopleural fistula, without any survival benefit. Median survival ranged from seven months to 17 months.
- Few of the identified studies reported on symptom control, and no studies included formal measures of QOL.

Related Guidelines

- Evidence Summary Report #7-14-1: *The Use of Chemotherapy in Patients with Malignant Pleural Mesothelioma.*
- Evidence Summary Report #7-14-2: *Surgical Management of Malignant Pleural Mesothelioma.*

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