External beam radiation therapy for bronchial stump recurrence of non-small-cell lung cancer after complete resection

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Authors' objectives
To assess the effectiveness of high-dose external beam radiation therapy (EBRT) for people with bronchial stump recurrence after complete resection of non-small-cell lung cancer (NSCLC).

Searching
PubMed, Cancerlit and MEDLINE were searched from 1966 to September 2001; the search terms were reported. The authors also reviewed reference lists and manually searched journals. One study in a language other than English was included.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs) and non-randomised studies were eligible if they contained more than one participant. All of the studies ultimately included in the review were retrospective.

Specific interventions included in the review
Studies of monotherapy with EBRT were eligible for inclusion in the review. To be included, the doses of radiation had to be 'radical' (curative). The radiation doses and fractionation varied between the included studies and were tabulated in the review. Where stated, the total radiotherapy dose was between 3,000 and 8,000 cGy and fractionation ranged from 19 to 35 segments. The duration of treatment ranged from 5.5 months to more than 60 months.

Participants included in the review
Studies of people of any age, with bronchial stump recurrence after complete surgical resection of NSCLC, were eligible. The authors did not describe the demographic or other disease characteristics of the participants. Most of the participants had bronchial stump recurrence only, but some had recurrence in mediastinal nodes, lymph nodes, or extension into other areas.

Outcomes assessed in the review
The outcome measures of interest were the median survival time and survival rates at 1 to 5 years following after EBRT.

How were decisions on the relevance of primary studies made?
One reviewer made the decisions on whether to include or exclude studies, and a second reviewer checked them. Any discrepancies were resolved by discussion.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
One reviewer extracted the data and a second reviewer checked them.

Methods of synthesis
How were the studies combined?
The authors provided a narrative synthesis and presented pooled weighted mean data for people with bronchial stump
recurrences only.

How were differences between studies investigated?
The authors described differences between the studies in terms of radiotherapy treatment. They did not report a statistical heterogeneity analysis.

Results of the review
Six retrospective studies with 54 participants were included.

The pooled analysis of six retrospective studies found that EBRT was associated with a median survival of 28.5 months, and a 1-year survival of 81.5%, 2-year survival of 55%, 3-year survival of 40%, 4-year survival of 30% and 5-year survival of 31.5%.

Authors' conclusions
EBRT appeared effective for people with bronchial stump recurrence of NSCLC following complete resection. However, the authors acknowledged that these conclusions were based on a small number of participants.

CRD commentary
This review included a defined research question, study population, and inclusion criteria for the participants, research designs and interventions. The search strategy appeared largely acceptable, although it seems that unpublished studies and conference proceedings were excluded. The authors noted that one non English language study was translated by the original author for inclusion, but it was unclear whether all non English language studies were eligible or if this was a special case. Decisions to limit inclusion based on these factors might have introduced language or publication bias into the review. In this case, the exclusion of unpublished studies may be of particular importance as only a small number of studies of limited quality were identified. The authors provided reasons for excluding some studies, but they did not describe the processes used to assess relevance or validity in any depth. It was appropriate that all decisions appeared to have been double-checked.

The narrative synthesis appeared appropriate. The pooled analysis was completed using established methods, although no statistical analysis of heterogeneity was presented. However, the authors did mention some important heterogeneity, based on diagnostic grounds and participant characteristics, which may limit the clinical generalisability of the pooled analysis.

The authors were very explicit about the limitations of their conclusions, given that the findings were based on a small number of participants from retrospective studies. The authors' conclusions and suggestions for further research appear to be supported by the limited amount of data available.

Implications of the review for practice and research
Practice: The authors stated that EBRT appeared to be an effective treatment in people with bronchial stump recurrence following complete resection for NSCLC.

Research: The authors stated that further research is needed on potential dose-response relationships, patterns of failure, and optimal dose, fractionation and treatment fields.

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