Meta-analysis of randomised trials of systemic chemotherapy versus supportive treatment in non-resectable non-small cell lung cancer


Authors' objectives
To determine the usefulness of polychemotherapy in advanced and disseminated non-small cell lung cancer.

Searching
A manual and computerised literature search was undertaken (no details were given). Abstract booklets and conference proceedings were searched to identify unpublished trials.

Study selection
Study designs of evaluations included in the review
Completed, randomised controlled trials (RCTs) were included.

Specific interventions included in the review
Polychemotherapy versus best supportive care in non-small cell lung cancer of Stage IIIB and IV. Chemotherapy in the included studies: cyclophosphamide, epirubicine, cisplatin alternated with methotrexate, belustine, etoposide, methotrexate, doxorubicine, cisplatin, vinblastine, vindesine.

Participants included in the review
Patients with Stage IIIB or IV non-small cell lung cancer. The included studies all had an age eligibility criteria: 5 studies had age less than 70 years, the other 2 had age less than 75 years. All included studies required no prior chemotherapy, one required no prior radiotherapy as well. Four studies had treatment until progression, two had treatment continued only if objective response and one study had a maximum of four courses.

Outcomes assessed in the review
Mortality was assessed at 3, 6, 9, 12 and 18 months.

How were decisions on the relevance of primary studies made?
The authors do not state how the papers were selected for the review, or how many of the authors performed the selection.

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

Data extraction
The authors do not state how the data were extracted for the review. All principal investigators from each of the studies agreed to participate in the study, but individual data were not available for all studies.

Methods of synthesis
How were the studies combined?
Six different methods of meta-analysis were used: Cochran, Mantel-Haenszel, Peto, difference of rates, logarithm of odds ratio, and DerSimonian. The technique giving the highest P-value for association or the lowest P-value for heterogeneity was chosen for the published results.

How were differences between studies investigated?
Tests for association and homogeneity were undertaken, but the results were not reported. A narrative description of the
variations in cancer stages and eligibility criteria, and chemotherapy regimens for the included studies was given.

**Results of the review**
Seven studies with a total of 706 participants were included.

There is a significant reduction in mortality at 3 and 6 months (p=0.01), there is a non-significant reduction in mortality at 9, 12 and 18 months. The risk reduction for polychemotherapy versus best supportive care was 0.65, 0.74, 0.89, 0.92 and 0.96 at 3, 6, 9, 12 and 18 months respectively.

**Cost information**
A Canadian study is reported (which was not included in the meta-analysis) which concluded that polychemotherapy was not more expensive than best supportive care.

**Authors' conclusions**
The meta-analysis showed a statistically-significant reduction of mortality with polychemotherapy in advanced and disseminated non-small cell lung cancer up to 6 months. This increase in survival coupled with a certain improved quality of life and reduction of cancer symptoms suggests that polychemotherapy should be recommended for patients with non-resectable non-small cell lung cancer.

**CRD commentary**
The databases and search terms used to identify the literature are not reported. It would be useful to have more information on the primary studies included (for example, details of randomisation, length of follow-up, etc.). It is unclear why so many different meta-analytic techniques were used, it is not reported whether this decision was made a priori or post-hoc. The authors' conclusions about quality of life are based on two studies not included in the meta-analysis.

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