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## Prophylactic Cranial Irradiation in Small Cell Lung Cancer Practice Guideline Report #7-13-2

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ORIGINAL GUIDELINE: March 22, 2000

UPDATE: November 2003

New evidence found by update searches since completion of the original guideline is consistent with the original recommendations.

### SUMMARY

#### Guideline Questions

1. What is the role of prophylactic cranial irradiation in patients with small cell lung cancer who have achieved complete response/remission?
2. What dose and fractionation schedules of prophylactic cranial irradiation are optimal?
3. Does the use of prophylactic cranial irradiation in patients with small cell lung cancer in complete remission affect quality of life?

#### Target Population

These recommendations apply to adult patients with limited- or extensive-stage small cell lung cancer who have achieved complete remission in response to induction therapy (chemotherapy or chemoradiotherapy).

#### Recommendations

- For patients who have achieved complete response after induction therapy, prophylactic cranial irradiation is recommended. There is insufficient evidence to make a definitive recommendation with respect to dose. There is some indication that 30 to 36 Gy in 2 to 3 Gy per fraction or a biologically equivalent dose may produce a better outcome than a lower dose or less aggressive fractionation regimen.

#### Qualifying Statements

- The schedule commonly used in Canada is 25 Gy in 10 fractions over two weeks. Data from further research, including a trial currently ongoing that compares 25 Gy in 10 fractions with 36 Gy in 18 fractions, will be required to determine optimal dose of prophylactic cranial irradiation.
- There is insufficient evidence to make recommendations concerning the optimal timing of prophylactic cranial irradiation in relation to the administration of chemotherapy. Lung Cancer Disease Site Group members generally felt that it should be given as soon as possible after completion of chemotherapy.

## Methods

Entries to MEDLINE (1985 through October 2003), CANCERLIT (1985 through October 2002), EMBASE (1980 through 2003, week 34), and the Cochrane Library (2003, Issue 4) databases were systematically searched for evidence relevant to this practice guideline report.

Evidence was selected and reviewed by two members of the Practice Guidelines Initiative's Lung Cancer Disease Site Group and methodologists. This practice guideline report has been reviewed and approved by the Lung Cancer Disease Site Group, which comprises medical and radiation oncologists, pathologists, surgeons, a medical sociologist, and patient representatives.

External review by Ontario practitioners was obtained through a mailed survey. Final approval of the practice guideline report was obtained from the Practice Guidelines Coordinating Committee.

The Practice Guidelines Initiative has a formal standardized process to ensure the currency of each guideline report. This process consists of the periodic review and evaluation of the scientific literature and, where appropriate, integration of this literature with the original guideline information.

## Key Evidence Update

- There is strong evidence to recommend prophylactic cranial irradiation for patients who have achieved complete remission following chemotherapy or chemoradiotherapy. Data from randomized controlled trials demonstrate that prophylactic cranial irradiation decreases the frequency of brain metastases and increases disease-free survival in these patients. Two meta-analyses conducted on an overlapping set of studies report increased overall survival, and one reports increased disease-free survival with prophylactic cranial irradiation.
- There is evidence from randomized controlled trials with data for up to two years of follow-up that prophylactic cranial irradiation does not produce significant late neurotoxicity. There is evidence from one randomized controlled trial that prophylactic cranial irradiation does not have a detrimental effect on quality of life in the first 12 months following the completion of therapy. There is insufficient evidence to comment on the long-term effects of prophylactic cranial irradiation on quality of life.

## Related Guidelines

Practice Guidelines Initiative Practice Guideline Report:

- #7-13-1: *The role of combination chemotherapy in the initial management of limited-stage small-cell lung cancer.*
- #7-13-3: *The role of thoracic radiotherapy as an adjunct to standard chemotherapy in limited-stage small cell lung cancer.*

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## **PREAMBLE: About Our Practice Guideline Reports**

The Practice Guidelines Initiative (PGI) is a project supported by Cancer Care Ontario (CCO) and the Ontario Ministry of Health and Long-Term Care, as part of the Program in Evidence-based Care. The purpose of the Program is to improve outcomes for cancer patients, to assist practitioners to apply the best available research evidence to clinical decisions, and to promote responsible use of health care resources. The core activity of the Program is the development of practice guidelines by multidisciplinary Disease Site Groups of the PGI using the methodology of the Practice Guidelines Development Cycle.<sup>1</sup> The resulting practice guideline reports are convenient and up-to-date sources of the best available evidence on clinical topics, developed through systematic reviews, evidence synthesis, and input from a broad community of practitioners. They are intended to promote evidence-based practice.

This practice guideline report has been formally approved by the Practice Guidelines Coordinating Committee, whose membership includes oncologists, other health providers, patient representatives, and Cancer Care Ontario executives. Formal approval of a practice guideline by the Coordinating Committee does not necessarily mean that the practice guideline has been adopted as a practice policy of CCO. The decision to adopt a practice guideline as a practice policy rests with each regional cancer network that is expected to consult with relevant stakeholders, including CCO.

### Reference:

- <sup>1</sup> Browman GP, Levine MN, Mohide EA, Hayward RSA, Pritchard KI, Gafni A, et al. The practice guidelines development cycle: a conceptual tool for practice guidelines development and implementation. *J Clin Oncol* 1995;13(2):502-12.

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