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### **Prophylactic cranial irradiation in lung cancer.**

Blanchard P, Le Pécoux C.

Radiation Oncology Department, Institut Gustave Roussy, Villejuif, France.

**PURPOSE OF REVIEW:** Brain metastases are frequent in lung cancer. They are responsible for life-threatening symptoms and serious impairment in patients' quality of life, resulting in a shortened survival. Prophylactic cranial irradiation (PCI) has been proposed in both small-cell lung cancers (SCLCs) and non-SCLCs to reduce the incidence of brain metastases and increase survival. **RECENT FINDINGS:** PCI reduces the incidence of brain metastasis in both limited disease and extensive disease SCLC and in nonmetastatic non-SCLC. In addition, PCI significantly improves overall survival in limited disease and extensive disease SCLC in patients who respond to first-line treatment. Although PCI is potentially associated with long-term neurological toxicity, no significant increase in late sequelae has been shown in randomized trials between PCI and no PCI patients. No dose-effect relationship for PCI was demonstrated in limited disease SCLC patients in a well powered randomized trial. **SUMMARY:** In limited disease SCLCs, PCI should be administered at the dose of 25 Gy in 10 fractions to first-line treatment responders. In extensive disease SCLC, PCI is recommended in patients who respond to first-line chemotherapy. Clinical trials are ongoing to investigate the role of PCI in non-SCLC patients.

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