CLINIC MINUTE 🧠⚡

ACRO CLINIC MINUTE PRESENTS:

To Radiate, or Not to Radiate?

Prophylactic Cranial Irradiation or MRI Surveillance for Limited Stage Small Cell Lung Cancer

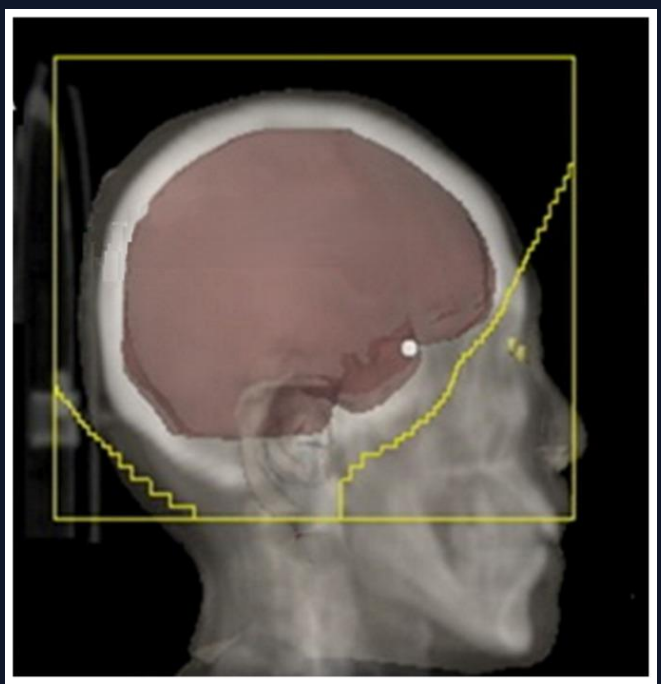
Introduction to PCI

High Relapse Rate: > 50% of small cell lung cancer (SCLC) patients will develop brain metastases

Prophylactic cranial irradiation (PCI) can be considered in SCLC patients without radiographic evidence of brain metastases to treat possible microscopic disease. Historically PCI had roughly a ~5% OS benefit in studies with CT alone.

However, in addition to acute toxicities, PCI affects neurocognition months to years after treatment.

Common PCI dose: 25 Gy in 10



Mamodanna et al. Curr Issues Mol Biol. 2025 Nov 28;47(12):998

Historical Perspective

PCI or MRI surveillance has been debated for several years

EORTC trial (Slotman NEJM 07)

- Randomized asymptomatic patients without initial brain MRI: PCI vs observation
- PCI arm had improved overall survival and lower rate of symptomatic brain metastases
- No MRI surveillance in observation arm

Japan Trial (Takahashi Lancet 17)

- Randomized patients with negative brain MRI: PCI vs frequent MRI observation
- No overall survival difference detected
- 60% of patients in observation arm had therapeutic whole brain radiation

Need modern evidence for PCI vs MRI integrating survival and neurocognition

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MAVERICK TRIAL

Phase 3 RCT: SCLC with negative MRI Brain (70% LS, 30% ES)

Randomized

1. Surveillance with brain MRI q3mo for year one, q6mo for year two
2. PCI (25 Gy in 10 fractions) +/- hippocampal avoidance

Primary endpoint

Cognitive failure free survival (CFFS)

Results

MRI surveillance group: SIGNIFICANTLY REDUCED RISK of cognitive failure

No OS difference detected after about 2 years of follow-up

Conclusion: MRI surveillance **improves cognitive failure free survival**, however, **await mature data** (OS and 2nd endpoints).

Limitations: Trial completed prior to ADRIATIC/IO in SCLC, unclear how IO might influence patterns of failure after PCI.

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Quick Takes & Reflections

PCI was used routinely because of observed high risk of brain failure, but are the risks still worth it in the era of MRI surveillance and stereotactic salvage?



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