N107C/CEC.3: A Phase III Trial of Post-Operative Stereotactic Radiosurgery (SRS) Compared with Whole Brain Radiotherapy (WBRT) for Resected Metastatic Brain Disease

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Background

• WBRT standard of care after resection of brain metastasis to improve local control
  • However WBRT after resection
    • No survival benefit
    • Side effects (hair loss, fatigue, skin redness)
    • Concerns cognitive impact

• Growing practice of SRS to the surgical cavity to reduce risk cognitive toxicity
  • Despite no level I efficacy data Post-Op SRS
  • Despite costs of SRS

• Need to prospectively evaluate and compare SRS surgical bed to WBRT, the standard of care
Method

- Resected Brain Met*

  Eligibility Criteria:
  - S/P resection 1 lesion
  - 0-3 unresected mets
  - No chemo during radiation

  Primary Endpoints:
  I: Cognitive Deterioration Free Survival
  II: Overall Survival

  Patient Assessments:
  - MRI
  - Quality of Life (QOL)
  - Cognitive Battery

  - Age (18 to 59 vs. ≥ 60)
  - Extra-Cranial Disease Controlled (≤ 3 vs. > 3 mo)
  - Number Pre-Op Brain Mets (1 vs. 2-4)
  - Histology (Lung vs. Radioresistant vs. Other)
  - Resection Cavity Max Diam (≤ 3cm vs. > 3cm)
  - Institution

  - WBRT + SRS unresect mets
  - SRS + SRS unresected mets

*194 patients, 59% Lung Primary Tumor, 77% single metastasis
Results

No Difference in Survival

Worse Cognitive Function with WBRT
Results

Surgical bed control similar, although long-term better with WBRT

However, with WBRT...

- Worse quality of life (QOL)
- More toxicity
- Longer treatment course and delayed systemic therapy
Conclusions

Post-Op SRS for patients with resected brain metastases should also be a standard of care with equivalent survival, better preservation of cognitive function and QOL, and less toxicity than WBRT.