A Decade of “50 in 5”: Maturing SBRT Outcomes For Medically Inoperable Early Stage Lung Cancer At Cleveland Clinic Over 10 Years

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Background

• Lung stereotactic body radiotherapy (SBRT) has emerged as the standard of care for early stage, medically inoperable non-small cell lung cancer (NSCLC).
  – Basis: Retrospective and prospective data show its excellent local control and cancer-specific survival with minimal acute toxicities in this fragile population.

• At Cleveland Clinic, Lung SBRT was initiated in 2003.

• Given a decade of experience, we wished to further characterize our outcomes (early and late) for patients treated with this approach.
Methods

• SBRT delivery
  – Novalis/BrainLAB platform
  – Bodyfix immobilization
  – Tumor motion controlled by abdominal compression
  – Image guidance during delivery by Exactrac
  – All pts treated with 50 Gy in 5 fractions between 10/1/2003 and 12/31/2012 to provide a minimum of 1 year follow up.
Results

• 340 lesions treated in 300 patients, of which 15% had multiple treatments.

• Median follow up for survival was 17.4 months (range 0.3-112.2) and 17.8 months for living patients (range 2.1-96.7) with 46.7% of patients alive at analysis.

• Any grade toxicity was reported in 13.0% of patients, with no grades 4 or 5, and with chest wall symptoms preponderant (59.5%).

• For central versus non-central lesions,
  – Total all grade toxicity: 15.5% vs. 11.7%
  – Proportion of the total rate by location:
    • chest wall toxicity 37.5% vs. 73.9%
    • Pneumonitis 37.5% vs. 26.1%
Conclusions

• A decade’s experience with Lung SBRT using 50 Gy in 5 fractions reveals
  – Excellent local control, which tumor size may affect
  – The dominant pattern of failure is distant.
  – Co-morbidity drives overall mortality, with favorable cancer-specific survival.
  – This schedule is effective independent of tumor location in the lung, i.e, no difference between “peripheral” and “central” tumors
  – Overall minimal rates of high grade toxicities that are location-dependent.