Tolerability and Safety of Thoracic Radiation and Immune Checkpoint Inhibitors among Patients with Lung Cancer

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Background

• The use of immune checkpoint inhibitors (ICPIs) has become increasingly common in the management of advanced lung cancer

• Thoracic radiation therapy (TRT) has a proven role in the management of various stages of lung cancer

• We assess the risk of side effects with TRT and single agent or combined ICPIs
Method

• Data were analyzed retrospectively from our institutional database of patients treated with radiotherapy and ICPIs

• We identified 29 patients that received TRT between February 2012 and May 2016 within 6 months of ICPIs

• Toxicity information was obtained by independent review of the clinical chart by two physicians
Results: Toxicity

- 3 of 29 (10%) experienced severe pneumonitis attributable to TRT and/or ICPIs, with one grade 5 toxicity

- 2 of 29 patients experienced pneumonitis attributable to ICPIs alone and went on to receive TRT without additional toxicity
Results: Survival

Median OS 9.2 months (5.1, Not Reached-95% CI)

Median PFS 3.8 months (1.9, 8 months-95% CI)
Conclusions

• Treatment with ICPIs and thoracic radiation therapy carried a modest risk of side effects

• Our study indicates the risk of TRT/ICPI-related pneumonitis may be highest when TRT is delivered after ICPI therapy

• We advocate for ongoing studies to assess the synergistic effect with TRT and ICPIs and ongoing toxicity evaluations