Low-Dose Whole Lung Radiotherapy for Immunomodulation in COVID-19-Related Pneumonia

Ramesh Rengan, MD, PhD, FASTRO
Professor and Chair, Department of Radiation Oncology
University of Washington School of Medicine
Disclosures

• No financial conflicts relevant to this presentation

• Honoraria/Incidental Expenses: MDACC, AACR, IBA, Novocure

• Consultant: AstraZeneca
Does radiation therapy have value in the short-term clinical management of severe pulmonary inflammation caused by COVID-19?
Does radiation therapy have value in the short-term clinical management of severe pulmonary inflammation caused by COVID-19?

- This is a reasonable question to test in clinical trials
  - Inflammatory cells are very sensitive to radiation
  - Low-dose radiotherapy can act as an immunosuppressant and has been used effectively in inflammatory conditions such as arthritis, etc.
  - Early data suggest potential value of LD-RT in this setting
Does radiation therapy have value in the short-term clinical management of severe pulmonary inflammation caused by COVID-19?

- There are important caveats to consider, however
  - Questions about the magnitude of potential harm relative to benefit
  - Lack of clarity about what dose of radiation will be sufficient but also safe
  - Treatment may suppress immediate inflammation but also make patients potentially more vulnerable to secondary lung inflammation
  - Practical concerns bringing COVID-19+ patients into cancer clinics, where patients are particularly vulnerable to infection
Take Home Points

• Important early data suggesting potential value of LD-RT in this setting

• Need larger patient numbers and longer-term follow-up (3-6 months)
  • This is 10 patients of ~57,000 hospitalized with COVID-19 in US
  • Comparator data should be interpreted with caution as this was not randomized
  • Unclear whether LD-RT will provide additional benefit over better established therapies (convalescent plasma, mAB therapy, steroids)

• 15 ongoing multi-institutional prospective (some randomized) trials of LD-RT should provide guidance

• These trials will also provide important data on
  • Long-term impact of LD-RT in high-risk population
  • Radiotherapy workforce protection
  • Cancer patient exposure mitigation