

Professor Suresh Senan: controversies on radiotherapy in lung cancer

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Suresh Senan (*Figure 1*) is Professor of clinical experimental radiotherapy at the VU University Medical Center in Amsterdam, and vice-chairman of the Department of Radiation Oncology. Following undergraduate studies at the National University of Singapore, he trained in general internal medicine. In 1988, he commenced training in radiotherapy and oncology at the Beatson Oncology Centre in the United Kingdom. He moved to Erasmus Medical Center in The Netherlands in 1994, and to the VU University Medical Center in Amsterdam in 2002. His research group has been active in 4-dimensional imaging for radiotherapy planning, guideline development for image-guided radiotherapy, implementation of volumetric modulated arc therapy, clinical trials of radiotherapy combined with new agents, and comparative effectiveness research.

During the 2014 ASTRO Annual Meeting, Prof. Senan participated in a panel discussion on the topic of stereotactic body radiotherapy (SBRT) in the treatment of early-staged lung cancer. The journal of *Translational Lung Cancer Research* was honored to have an interview with Prof. Senan, in which Prof. Senan shared his views about the controversies on radiotherapy in lung cancer (*Figure 2*).

TLCR: *What is the latest development on radiotherapy in lung cancer that has interested you most at this year's ASTRO?*

Prof. Senan: Developments in stereotactic ablative radiotherapy have again attracted much interest, with the updated results from the landmark Radiation Therapy Oncology Group 0236 trial being of special interest.

TLCR: *In your opinion, how significant is SBRT in the treatment of early-staged lung cancer?*

Prof. Senan: SBRT is now a guideline recommended treatment in Europe and North America for patients with a small early-stage NSCLC, who are unfit for surgery.



Figure 1 Suresh Senan, MRCP, FRCR, PhD.



Figure 2 TLCR's Science Editor is with Professor Suresh Senan during the 2014 ASTRO in San Francisco.

Patients who previously underwent standard radiotherapy delivered once-daily for 30 or more fractions, now increasingly undergo SBRT in 3-8 fractions. The local control rates with SBRT are in the range of 85-90%, and

this is attributed to both high radiation doses, and the use of treatment machines (or linear accelerators) equipped with on-board imaging to ensure that the tumor is at the correct location. Patients receive daily treatments to a dose of up to 18 Grays with SBRT, as opposed to the 2 Gray per fraction with standard radiotherapy. With aging populations, the median age of new patients with lung cancer is approximately 70 years, and the ability to complete curative treatments in less than 2 weeks has been shown to improve compliance. Hence, we can treat more patients with curative intent, and are curing more patients. Outpatient treatment with SBRT has been shown to reduce healthcare costs in a study performed in the Canadian setting.

TLCR: *It is controversial about whether the chemoradiotherapy before surgery works in the treatment of lung cancer. What're your opinions in this regard?*

Prof. Senan: In stage III NSCLC, the results of surgery alone are poor. Consequently, pre-operative chemotherapy and radiotherapy have been used to shrink the tumor (referred to as 'downstaging') so that a radical surgical excision is possible. A number of prospective studies have investigated this approach, but the addition of surgery as a standard for all patients has not been shown to lead to better overall survival. However, in selected fit patients who also have low volume nodal metastases, results in the hands of experienced multi-disciplinary teams are good. In the long-term, however, the survival rates are not optimal due to the incidence of distant recurrences, and due to second primary lung cancers.

TLCR: *In China, the patients are usually detected with lung cancer until the disease has developed into advanced stage. Do you have any suggestions for people to early detect the lung cancer?*

Prof. Senan: Some countries have tried to increase the public's awareness of the need to seek medical attention when they experience new lung symptoms. I am not sure whether this will turn out to be beneficial. The use of computed tomography (CT) screening of populations at high-risk for lung cancer is obviously of interest. As more early-stage cancers can be detected, it is hoped that this will lead to an improvement in cure rates. While the American NLST study was positive, we await results of European studies that are expected next year. CT screening

remains somewhat controversial in Europe as more than 95% of nodules detected in the NLST study were benign, but which led to some patients undergoing invasive investigations. In some parts of the world, the changes due to previous infections, such as pulmonary tuberculosis or fungal infection, may complicate CT screening.

TLCR: *As multidisciplinary treatment (MDT) is gaining increased attention, is it commonly practiced in your center?*

Prof. Senan: Multidisciplinary discussions are a standard part of our clinical practice, and such meetings are essential for determining the best treatment for early-stage NSCLC in patients who are at increased risk for treatment-related morbidity and mortality.

TLCR: *In Europe, how is one educated and trained to be a radiation oncologist?*

Prof. Senan: After obtaining a basic medical qualification, one has to join a residency program lasting between 4 to 6 years, depending on the country, in order to qualify as a radiation oncologist. I trained in Glasgow, Scotland for five years, before taking on a staff position in The Netherlands. Continuing education in both general and thoracic is important and both national and international bodies like the European Society for Radiotherapy and Oncology (ESTRO) and International Association for the Study of Lung Cancer (IASLC) have programs for this. I should add that the IASLC has very useful multi-disciplinary webinars (including in Chinese) that cover recent developments in thoracic oncology, and non-members can also access some of the materials.

TLCR: *What do you think of the shortage on radiation oncologists?*

Prof. Senan: I am not sure about the extent of this problem in Europe and North America, but the shortage is clearly critical in parts of Asia and Africa. The number of patients in these regions who lack access to basic curative radiotherapy for common malignancies in children, for head and neck cancer and cervix, for example, is simply unacceptable. Some international initiatives, from example by the IAEA, are addressing this and such initiatives deserve our support. National planning initiatives are quite important in order

to ensure that sufficient healthcare workers are trained in order to meet the needs of the growing numbers of patients with cancer that require radiotherapy.

TLCR: Thank you very much!

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