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PLENARY SESSION "Combined treatment for lung cancer: Chemical and biological radio modulation"

Small cell lung cancer: State of art and strategies to improve survival

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Small cell lung cancer (SCLC) represents approximately 13% of all lung cancer diagnoses and the incidence has reduced over the last 20 years. Treatment of SCLC remains challenging because of its rapid growth, early dissemination and development of drug resistance during the course of the disease.

Chemotherapy remains the cornerstone of treatment for limited (LD) and extensive disease (ED), with concurrent chemotherapy and radical thoracic radiotherapy representing the best treatment option for fit patients with LD. Platinum-based chemotherapy is the treatment of choice in fit patients with good organ function, and the radiosensitizing effect of cisplatin is critically important for concurrent RTCT in LD.

The standard of care in good PS (0–1 and sometimes 2) stage I–III SCLC is early concurrent RTCT followed by PCI with the best survival results being achieved with twice-daily radiation. As a result of the implementation of early concurrent RTCT, the 5-year survival of stage I–III SCLC patients has increased from 15% with sequential RTCT to 25–30% with early concurrent RTCT.

A strategy to improve on the results of concurrent RTCT is to test the delivery of higher doses of radiation delivered once a day against the twice a-daily Turrisi regimen (45 Gy in 30 fractions). However, the question of dose has to be weighed against the importance of the treatment time delivery, as it is unclear whether the better results in the twice-daily arm of the Turrsisi study are explained by the increase in the biological effective dose of radiation or by the use of altered fractionation leading to a shorter overall treatment time. Furthermore, the analysis of four randomized trials suggested that time from start of any treatment to completion of radiotherapy (SER) may be a key variable in predicting outcome.

The omission of elective nodal irradiation (ENI) is another strategy to improve on the current results of CTRT as it reduces the exposure of normal tissue to high doses of radiation and can potentially allow dose escalation in order to improve local control. Three small phase II studies have reported on the use of RTCT without ENI with rates of isolated out-of-field nodal relapse in 5% ($n = 38$) and 11% ($n = 27$) of patients using CT-based radiotherapy planning; and 3% of patients ($n = 60$) using FDG-PETCT based radiotherapy planning.

Prophylactic cranial irradiation has been shown to reduce the incidence of brain metastases and prolong survival for both LD and ED without negative impact on quality of life (QOL) and cognitive function. The standard dose of PCI (25 Gy in 10 fractions) therefore remains the standard of care in stage I–III SCLC patients. Ongoing trials will shed some light on the impact of thoracic radiotherapy on QOL, symptom control and survival in ED SCLC patients who benefited from first-line chemotherapy.

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