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Toxicity of small cell lung cancer treatment

Francesc Casas, MD, PhD[a,*], Núria Viñolas, MD, PhD[b]

[a]*Department of Radiation Oncology, Institut Clínic de Malalties Oncohematològiques, Hospital Clínic i Universitari, Villarroel 170, 08034 Barcelona, Spain*
[b]*Department of Medical Oncology, Institut Clínic de Malalties Oncohematològiques, Hospital Clínic i Universitari, Villarroel 170, 08034 Barcelona, Spain*

The main objective of all oncologic treatment is to eradicate local and systemic neoplastic disease without severely compromising the quality of life of the patient. The optimum combination of chemotherapy and radiotherapy is based on the equilibrium between their antitumoral effectiveness and the morbidity that the normal neighboring tissue may undergo. Chemotherapy also acts against micrometastasis outside the field of radiotherapy and increases the effect of the latter, with greater control at a local level. In contrast, radiation acts exclusively at a locoregional level. During the course of radiotherapy, the target volume and the disposal of the treatment rays are designed with the aim of achieving the maximum dose in the tumor while maintaining the minimum dose possible in the neighboring tissues. In the treatment of lung cancer, the dose-limiting factors or organs (also called critical organs) are those within the surrounding area, such as the normal lung itself, the esophagus, and less commonly, the heart. Similarly, the maximum dose tolerated in chemotherapy is related to the recovery capacity of the healthy tissue (especially bone marrow) in relation to the rate of growth or tumoral recovery. Some drugs such as the cisplatin analogs may cause a certain increase in the toxicity of normal tissue (as in the case of esophagitis) when used concomitantly with thoracic irradiation. This toxicity may be acute or deferred over time and may even cause late esophageal stenosis.

Thus, the aggressivity of treatment may only be determined through knowledge of the acute tolerance of the normal tissue and the involvement that may appear later. With the current use of combined treatments, toxicity may present in patients who receive doses of both treatments considered as "safe." Reactions also may unforeseeably occur after an undetermined period of time.

The variety of the possible interactions between radiotherapy and chemotherapy may appear over a wide spectrum of potential morbidities. The inherent difficulties in understanding these interactions may be complicated by the number

* Corresponding author.
E-mail address: fcasas@clinic.ub.es (F. Casas).

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