

ACUTE MUCOSAL REACTIONS IN PATIENTS WITH ADVANCED HEAD AND NECK CANCER TREATED WITH CONCURRENT CHEMORADIOTHERAPY

Valentina Krstevska¹, Dusko Lukarski¹, Beti Zafirova-Ivanovska², Igor Stojkovski¹

¹ University Clinic of Radiotherapy and Oncology, Vodnjanska 17, Skopje, R. Macedonia, krstevskav@gmail.com, duskol@yahoo.com, istojkovski@gmail.com

² Institute of Epidemiology, Statistics and Informatics, Faculty of Medicine, Vodnjanska 31, Skopje, R. Macedonia, betizafirova@yahoo.com

Abstract –We conducted a clinical study to analyze the acute reactions in the oral cavity and the oropharyngeal (OCOPH) mucosa in patients with advanced head and neck cancer (HNC) undergoing a definitive treatment consisted of 3-D conformal radiotherapy combined with concomitant chemotherapy.

Twenty nine patients with HNC who were treated between February 2008 and October 2009 were included in the study. The median age was 55 years (range 29-70). The site distribution was as follows: oropharynx, 20.7%; hypopharynx, 41.4%; larynx, 37.9%. The radiation technique used for 3-D conformal radiotherapy was named “oblique photon fields” technique. The OCOPH mucosa as a critical normal tissue was delineated in every patient. Extraction of planning target volume (PTV50) from the volume of OCOPH mucosa led to formation of an OCOPH mucosa with extracted PTV50 (OCOPHEX mucosa). Acute mucosal reactions were recorded using Radiation Therapy Oncology Group (RTOG) grading system. The duration of a maximum grade of reaction was also recorded. A time intensity parameter, so-called Severity-Time Units (STU), quantifying the area under the acute reaction curve, was used to express the intensity of mucositis over time in every patient.

Grade 3 acute mucosal reaction was manifested in 19 patients (65.5%). The median duration of confluent mucositis was 21 days (range 14-35). The STU less than 1000 mm² and the STU more than 1500 mm² was calculated in equal number of patients (9 patients, or 31.0%). Statistically significant difference in the distribution of the grade 3 reaction was found among patients with different site of the primary tumor ($p = 0.003$). Statistically significant difference was found between the grade of the acute mucositis and the volume of OCOPHEX mucosa, the dose in 50% of the volume of OCOPHEX (D50%, OCOPHEX) mucosa, and the mean dose to OCOPHEX mucosa ($p = 0.02$, $p = 0.0002$, $p = 0.00001$, respectively). The tested relation between STU and delineated volumes (PTV50 and OCOPHEX mucosa) showed the presence of statistically significant difference ($p = 0.044$ and $p = 0.02$, respectively). Statistically significant difference was also found between STU and the mean dose to OCOPHEX mucosa ($p = 0.0003$). Linear regression showed negative correlation between STU and the volume of OCOPHEX mucosa ($r = - 0.7$; $p < 0.05$).

The incidence and the duration of confluent mucositis were significantly greater in patients with oropharyngeal primary lesions. The intensity in time of acute mucosal reactions was significantly higher in patients with the greatest PTV50 and in those with the smallest volumes of OCOPHEX mucosa.