

OC27: Analyses of pharyngeal constrictor muscles doses in radiotherapy of head and neck cancer patients

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Introduction: Late dysphagia is a radiotherapy (RT) side-effect that may develop up to 3 years after treatment and could be related to the irradiation of the Pharyngeal Constrictor Muscles (PCM) in RT.

Objectives: To quantify the radiation dose delivered to the PCM in head and neck (H&N) cancer patients with and without dysphagia.

Materials and Methods: 154 H&N cancer patients treated with radiotherapy at Instituto Português de Oncologia de Coimbra Francisco Gentil (IPOCFG) between 2007 and 2013 were included in this study. The mean dose and maximum significant ($D_{2\%}$) dose delivered to the total PCM and to the superior, medium and inferior PCM were determined for the group of patients with and without dysphagia at the follow-up times of 7, 12, 18 and 24 months.

Results and Discussion: The incidence of grade 1-3 late dysphagia at 7, 12, 18 and 24 months after RT was 31.3%, 25.7%, 14.8% e 15.8 %, respectively. Only at 24 months a statistically significant difference between the dose in the PCM in patients with and without dysphagia was obtained. The mean dose in the PCM in patients without and with dysphagia was 50.6 ± 7.2 Gy and 56.6 ± 5.7 Gy ($p=0.007$) and the $D_{2\%}$ was 61.5 ± 7.1 Gy and 67.4 ± 5.9 Gy ($p=0.006$), respectively. A statistically significant difference was also found in risk groups composed by patients with oropharyngeal tumors, with T1-2 and N2-3 tumor stage and treated with concomitant radiochemotherapy.

Conclusion: To reduce the risk of late dysphagia the dose in the PCM must be minimized and not surpass 55.5-58 Gy.

References

1. Popovtzer, A., Cao Y, Y., Feng, F., & Eisbruch, A. (2009). Anatomical changes in the pharyngeal constrictors after chemo-irradiation of head and neck cancer and their dose-effect relationships: MRI-based study. *Radiotherapy and Oncology*. Volume 93(3). Pages 510-515.