

Background, Hearing loss is one of the major complications of head and neck tumors. The combination of chemotherapy with cisplatin and radiotherapy, increased survival, becoming the standard of treatment for locally advanced tumors. However, all types of treatment, radiation therapy and chemotherapy with cisplatin, are known for their ototoxic effects. These treatments also impact the memory and brain structures associated with it. The present study aims to evaluate auditory thresholds and phonological memory changes in the individual with head and neck tumors submitted to chemotherapy and radiotherapy compared to a matched control group of age and sex who have never undergone this type of treatment, in order to alert about the hearing loss in these patients and to be created measures for the cognitive training plans in oncological patients submitted at these treatments.

Material and Methods, The sample was constructed by 24 patients with head and neck tumors of the Portuguese Oncology Institute of Coimbra Francisco Gentil E. P. E. and 24 individuals without oncological disease. The tests used were: pure tone audiogram (500Hz, 1000Hz, 2000Hz, 4000Hz, 6000Hz, 8000Hz), words repetition test, pseudowords repetition test (phonological memory test), memory test and all were realized at 65dB, in silence and noise conditions.

Results, The performance of the group of patients with tumor was worse in all tests. Statistical differences between groups were found in auditory thresholds, in words repetition and in pseudowords repetition test ($p < 0.05$).

Conclusion, The ototoxicity of the treatments was confirmed by the pure tone audiogram that auditory thresholds are worse in head and neck tumor patients. Regarding phonological memory, considering the result of the repetition test of words and pseudowords, it can be seen that it is impaired by chemotherapy and / or radiotherapy as a treatment of head and neck tumors. It's essential to alert health professionals and family members about hearing loss in tumor patients, to be created measures for the evaluation and training of patient's memory.

Keywords: Head and Neck Tumors; Auditory Memory; Memory Work; Chemotherapy; Radiotherapy.