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**Oral Health in Two Different Oncologic Cohorts: Case-Control Study**

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**Objectives** Bone Metastatic Cancer (BMC) patients and Head and Neck Cancer (HNC) patients require specific dental care in order to prevent and manage the adverse effects of radiotherapy (RT) and bone antiresorptive (AR) drugs. The aim of this observational case-control study was to compare the oral health (OH) status between HNC patients (case group) and BMC patients (control group). Moreover, secondary outcome was to identify any risk factors associated with poor OH status.

**Methods** The present case–control study was approved by the EC of Policlinico Universitario A. Gemelli IRCCS, and included BMC (case) patients and HNC (controls), matched for age, in a 1:3 ratio. All patients were evaluated at Fondazione Policlinico A. Gemelli, Rome. The OH status was clinically and radiographically evaluated using the DMFT index, a full periodontal charting and a radiological examination (orthopantomographs). The OH status was defined as "poor" in cases of DMFT ≥13 and/or stage III or IV periodontitis. A univariate statistical analysis was performed to detect the association between the different clinical variable and OH. The associated variables underwent a multivariate logistic regression, in order to retrieve the independent risk factors for poor OH.

**Results** The final sample included 234 patients (i.e., 58 BMC and 176 HNC). The mean age was 60.2, SD: 12.8). One hundred and sixty-two patients (69.2%) showed a poor OH. Among the HNC patients, 139 (78.9%) were affected by poor OH; compared to 23 (39.6%) among the BMC patients. HNC was an independent risk factor for poor OH (RR: 5.1, 95% CI: 2.2-11.73, $p<0.0001$), as well as age (RR for different decades: 50-59 years RR: 6.4, 95% CI: 2.5-16.7, $p<0.0001$, 60-69 years RR: 12.6, 95% CI: 4.5-35.1, $p<0.0001$, 70 years or older RR: 33.6, 95% CI: 10.3-109.7, $p<0.0001$) and smoking (RR: 4.5, 95% CI: 2.1-10.1, $p<0.0001$).

**Conclusions** This is the first study to examine the OH status in two different cohorts of cancer patients. HNC patients have a poorer OH compared to BMC patients at first dental visit. Nevertheless, smoking habit and age remain important risk factors for poor OH.