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The significance of a dentist on the prevention of complications such asosteoradionecrosis and tooth loss in head and neck cancer patients treated with radiotherapy

Josef Paul Kovarik

Palacky University, Czech Republic

Statement of the Problem More than 600,000 patients are diagnosed with head and neck cancer (HNC) each year worldwide. Increasing number of survivors raises additional challenges including a higher prevalence of dental complications and osteoradionecrosis (ORN). 1118 patients with HNC treated with radiotherapy (RT) from January 2010 to December 2019were analysed. Detailed RT dose mapping has been carried out within the specific areas of individual teeth/socket after extraction and center of ORN. Results 91 patients were found to have ORN. The incidence of ORN was higher in patients who underwent dental extraction pre-RT versus those who did not. Out of 192 patients in whom the extraction has been performed between 0 and 20 days before commencement of RT, ORN developed in 26 patients. Out of 315 patients with extraction performed in >20 days before commencement of RT, ORN developed in 24 patients. The timing of dental extraction before RT is a significant factor for development of ORN, if performed in less than 20 days before commencement of radiotherapy. Concerning the dental loss study, 78 patients with 1566 individual tooth data were selected. RT dose mapping was performed for each tooth. A total of 253 teeth were extracted. The significant risk factors were gender, xerostomia, radiotherapy dose and smoking.

Conclusions and recommendations: Concerning ORN, dose of RT >55Gy, dental extraction prior to commencement of RT, timing of extraction and the addition of chemotherapy are the most significant variables influencing the development of ORN. The authors recommend avoiding any unnecessary tooth extraction before RT. In patients with extracted teeth, every effort should be made to outline the sockets after extraction as organs at risk, in order to minimise the RT dose to extraction sockets without compromising the RT dose to the cancer.

Biography

MDDr. Josef Paul Kovarik graduated in 2017 at Palacky University, Olomouc in Czech Republic. Joined the prosthodontic department at the University's teaching Hospital for postgraduate program focusing his PhD on osteoradionecrosis and other dental complications related to head and neck cancer patients treated with radiotherapy. Finishing his research in the Northern Centre for Cancer Care, Freeman Hospital, Newcastle upon Tyne, UK publishing his findings in the British Dental Journal and British journal of oral and maxillofacial surgery and presenting across the world at ASTRO 2020 – Miami, USA and BAHNO 2021 – London, UK