# ABSTRACT

The treatment of locally advanced head and neck cancer (LAHNC) requires a multimodality approach. Radiotherapy with combination of chemotherapy has demonstrated to be effective, however, the treatment intensification leads to increased toxicity at the same time. The implementation of "three-dimensional conformal radiotherapy" (3D-CRT) allowed to irradiate the treatment volume more precisely with better surrounding healthy tissue sparing. Intensity modulated radiotherapy (IMRT) facilitated higher conformity in dose shaping to target volume. IMRT with simultaneous integrated boost (IMRT-SIB) offered the possibility to deliver individualized dose levels within one fraction and enabled escalation of the dose per fraction and radiotherapy acceleration. The aim of our study was to compare the technique of 3D-CRT and IMRT-SIB in the treatment of LAHNC and evaluate the treatment outcome and the treatment-related toxicity. 262 patients in 3D-CRT group and 263 patients in IMRT-SIB group underwent the radical treatment for LAHNC between 1/1998 and 12/2016. No statistically significant differences in locoregional control (LCR) and overall survival (OS) were found between the two groups. Acute toxicity and xerostomia were significantly reduced in patients treated with IMRT-SIB. IMRT-SIB is a safe radiotherapy method with reduced toxicity without compromising local control and overall survival.

Keywords: head and neck cancer, HNSCC, radiotherapy, 3D-CRT, IMRT-SIB, toxicity