

Jordan University of Science and Technology

Clinical and Molecular Characteristics of Jordanian Oropharyngeal Cancer Patients According to P16 expression: A retrospective study and a report of a novel biomarker

Authors: Marya Obeidat, Wisam Algargaz, Marwa Barukba, Khaldon Bodoor, Issa Mohamad, Farid Barakat, Samir Al Bashir

Abstract: Aim: The purpose of this study was to assess the clinicopathological features of oropharyngeal cancer patients in Jordan based on their HPV status. Methods: Sixty-nine biopsies from two hospitals were included. Tissue microarrays were prepared from formalin-fixed-paraffin-embedded (FFPE) specimens and stained with antibodies for CDKN2A/P16, EGFR, PI3K, PTEN, AKT, pS473AKT, pS2mTOR, and TIMAP. The cohort was divided according to P16 expression. Chi-square and survival analyses were employed to evaluate the variations among the study variables and determine the prognostic factors, respectively. Results: P16 expression was found in 55.1% of patients; however, there was no significant association between P16 expression and the patients' clinicopathological features. Survival analysis revealed that smoking in P16-positive group and younger age (<58 years) negatively impacted disease-free survival (DFS) ($P=0.04$ and $P=0.003$, respectively). Multivariate Cox regression test indicated that smoking, age, PI3K, and AKT were negative predictors of DFS ($P=0.021$, $P=0.002$, $P=0.021$, $P=0.009$, respectively), while TIMAP was a positive predictor ($P=0.045$). Conclusion: Elevated P16 expression is found in more than half of the patients' specimens. DFS is negatively affected by younger age and the combined effect of smoking and P16 overexpression. TIMAP is overexpressed in P16-positive oropharyngeal cancer and has a favourable prognostic effect on DFS.