ERCC1 polymorphism in patients with locally advanced head and neck squamous cell carcinoma treated with concomitant chemoradiation: prevalence and impact on treatment efficacy

Author block: O. Abboud, X. Weng, L. Guertin, É. Bissada, Z. Abou Chacra, P. Nguyen-Tan, B. Fortin, J. Tabet, M. Audet, D. Soulières; CHUM Montreal Québec Canada

Background: Excision repair cross-complementation group 1 (ERCC1) is a gene coding for the nucleotide excision repair complex. Its increased expression and polymorphism at codon 118 have been linked to poor response to chemotherapy or chemoradiation in several types of cancer. ERCC1 removes the cisplatin adducts on the DNA of cells and its polymorphism appears to be a marker of chemotherapeutic resistance to platinum-based therapy. **Objectives:** To determine the prevalence of the polymorphism of ERCC1 (codon 118) in patients with locally advanced HNSCC treated with concomitant platinum-based chemoradiation therapy with or without prior surgery, and its effect on efficacy evaluated by locoregional control, disease-free survival and overall survival.
Methods: Prospective data on efficacy was available on 460 consecutive patients treated with concomitant chemoradiation in our institution with a minimal follow-up of 2 years. Of these, 255 fixed and paraffin embedded biopsies or surgical specimens were collected. DNA was extracted from specimens and polymorphism of codon 118 was determined using a PCR technique. All analysis were performed using Kaplan-Meier survival curves, Fisher's test for categorical data and log-rank statistics for failure times.
Results: DNA extraction was successful in 252 patients. Polymorphism mapping was possible in 200 specimens. Genotypic distribution in the population was the following : AAT/AAT:41% (Gr1), AAC/AAT: 47%(Gr2), AAC/AAC: 13% (Gr3). At 3 years, evaluation of efficacy for Gr1, Gr2 and Gr3 was determined. Locoregional control was respectively 77%, 84% and 70% (p=NS), DFS was 69%, 70% and 64% (p=NS), and OS was 70%, 72% and 67% (p=NS).
Conclusions: ERCC1 polymorphism did not have an impact in our population on response to chemoradiation therapy. It can be postulated that ERCC1 does not seem to discriminate patients for whom another treatment option should be sought for patients with locally advanced SCCHN.