head and neck cancer

THE EXPRESSION OF P53, β-TUBULIN, BCL-2 ACCORDING TO P16 STATUS IN ADVANCED OROPHARYNGEAL CANCER AFTER INDUCTION CHEMOTHERAPY FOLLOWED BY CONCURRENT CHEMORADIOThERAPY


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Aim: Oropharyngeal cancer (OPC) associated with human papilloma virus (HPV) shows better treatment outcomes than non-HPV OPC. We investigated the expression of p53, β-tubulin, bcl-2 and ERCC1 according to p16 status in OPC patients receiving induction chemotherapy followed by concurrent chemoradiotherapy.

Methods: Patients who were treated with at least 2 cycles of induction chemotherapy for locally advanced oropharyngeal cancer from 2004 to 2011 were reviewed. Immunohistochemical staining of p53, β-tubulin, bcl-2, ERCC, which are well known to be associated with chemotherapy response, and p16, as a surrogate marker for HPV, was done in paraffin-embedded tumor tissue. We analyzed the response for chemotherapy and survival outcomes according to p16 expression.

Results: Seventy-four patients were enrolled for this study. All patients received induction chemotherapy with docetaxel, 5-FU, cisplatin (n = 72) or 5-FU and cisplatin (n = 2). One patient received a salvage operation and eight patients were not given radiotherapy due to poor general condition after induction chemotherapy. Therefore, 65 patients received chemoradiotherapy subsequently (total radiation dose; ≥60Gy: n = 54, <60 Gy: n = 11). After induction chemotherapy, complete response (CR) was shown in 22 patients (30%) and partial response (PR) in 46 patients (62%). Thirty-five patients (47%) expressed p16 positive. p16 positive patients showed better overall response (p = 0.018), PFS (p = 0.076), OS (p = 0.014) than p16 negative patients. The expressions of p53 (p <0.001) and beta tubulin (p = 0.003) were significantly weaker and bcl-2 (p = 0.019) was stronger in p16-positive than p16-negative patients. ERCC1 showed no significant difference according to p16 status. In multivariate analysis, PS (0 or others), p53, beta tubulin, T stage, postinduction response were significantly associated with OS.

Conclusions: OPC associated with HPV (HPV OPC) showed lower expression of p53, beta tubulin and higher expression of bcl-2 than non-HPV OPC. In addition, the expressions of p53 and beta tubulin were prognostic factors for OPC. This result suggested the underlying mechanism of better response to chemotherapy in case of HPV OPC than non-HPV OPC and de-escalation of treatment in patients with HPV OPC could be considered based on clinical trial results.

Disclosure: All authors have declared no conflicts of interest.