Role of Bcl-2 and Ki-67 Expressions in Predicting the Response to Radiotherapy in Cancer Larynx

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ABSTRACT

This study was conducted on 50 paraffin blocks of patients with laryngeal squamous cell carcinoma (T1 and T2 N0 M0) who had treated with radiotherapy in the period between 2003 and 2009. 25 blocks were collected from patients who failed radiotherapy and 25 blocks from patients who successfully improved by radiation. Response to radiotherapy was assessed during follow-up period by direct laryngoscopy and biopsy.

Immunohistochemical study of Bcl-2 revealed positive expression in 75% of radioresistant cases compared with 15% of radiosensitive cases. Negative expression of Bcl-2 occurred in 32% of radioresistant cases compared with 92% of radiosensitive cases. The study revealed non-significant expression of the proliferative marker Ki-67 between radioresistant and radiosensitive group.

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INTRODUCTION

Objectives:
Study of Bcl-2 protein and nuclear antigen Ki-67 expressions in laryngeal squamous cell carcinoma and its importance in predicting the tumor response to radiotherapy.

METHODS AND MATERIALS

Retrospective and prospective study.

This study was conducted on 50 paraffin blocks of patients with laryngeal squamous cell carcinoma (T1 and T2 N0 M0) who had treated with radiotherapy in the period between 2003 and 2009.

Sections (4um) were cut to be stained with H&E and for immunohistochemical staining for Bcl-2 and nuclear antigen Ki-67.

RESULTS

Immunohistochemical study of Bcl-2 revealed positive expression in 75% of radioresistant cases compared with 15% of radiosensitive cases.

Negative expression of Bcl-2 occurred in 32% of radioresistant cases compared with 92% of radiosensitive cases.

Bcl-2 is 75% sensitive and 92% specific and has an 80% accuracy in predicting patient response to radiotherapy.

CONCLUSIONS

Bcl-2 predicts radioresistance in patients with squamous cell carcinoma of the larynx. It can be used as a marker of poor radiotherapy outcome.

Bcl-2 positive patients could be offered an established and equally effective alternative treatment to radiotherapy, e.g. partial laryngectomy, resulting in improved patient survival and quality of life.

There was no relationship between radiosensitivity status and the proliferative marker Ki-67.

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