Impact of HPV DNA and p16 on radical chemo-radiotherapy response in oropharyngeal cancer patients

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Background: Incidence of Oropharyngeal Cancer varies greatly worldwide showing an increasing trend. This increasing trend in epidemiology of Oropharyngeal Cancer has been attributed to the infection by human papillomavirus [HPV]. In this study we aimed to determine the impact of the presence of HPV DNA and p16 in oropharyngeal cancer on response to treatment and toxicity in patients receiving radical chemo-radiotherapy at regional cancer center.

Methods: 80 patients of squamous carcinoma of oropharynx were enrolled. HPV DNA and p16 status of all patients was evaluated using polymerase chain reaction and immunohistochemistry. The selected patients for this study were treated with concurrent chemoradiation therapy with weekly cisplatin.

Results: Among 80 cases, 17 cases (21.2%) shows positive results for p16. P16 was positive in 64.7% cases of males and 35.3% cases of female on the other hand in p16 negative cases 84.1% cases were male while 15.9% cases were female. Overall, 83.8% of patients were tobacco users (smoking, n = 30 (44.8%); smokeless, n = 18 (26.9%), both, n = 19 (28.3%)). Tonsils (70%) is the most common site involved. Response of treatment was evaluated after 6 weeks of concurrent chemoradiation. Complete response was observed in 14 patients which were p16 positive and 47 patients which were p16 negative. Partial response in 3 (p16 positive) and 15 patients (p16 negativity). Stable disease was observed in 1 patient (p16 negative) and no cases with progression of disease was evaluated in response to treatment. Evaluation of toxicity was done and toxicity was graded in both HPV positive and HPV negative cases according to CTC. In both p16 positive and negative stomatitis (p = 0.75) was the most common adverse event. Oral stomatitis of Grade 1&2 (100% in p16_ patients). 4317 induced NK cells cytotoxicity upon co-culturing with BC cells.

Conclusions: We concluded that patients with HPV positive and p16 positive OPSCC show better response to treatment. Risk of severe late toxic effect is low after treatment of oropharynx cancer as due to the escalation of therapy risk of late toxic effects are decreased. This may have implication in doing p16 routinely in clinical practice and impilcation while considering for treatment de-intensification strategies.

Legal entity responsible for the study: Priyanka Yadav, Surender Beriwal.

Funding: Indian Council of Medical Research, New Delhi, India.

Disclosure: All authors have declared no conflicts of interest.