

Oral squamous cell carcinoma in young people with human papillomavirus

Carcinoma de Células Escamosas oral em pessoas jovens com papilomavírus humano

DOI: 10.34119/bjhrv5n3-189

Recebimento dos originais: 14/02/2022

Aceitação para publicação: 28/03/2022

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ABSTRACT

Introduction: The growth of oral squamous cell carcinoma (SCC) in positive human papillomavirus (HPV) patients is observed. The epidemiological profile is: young men, non-smokers and non-alcoholics. This is attributed to changes in promiscuous sexual practice. **Objective:** To understand HPV carcinogenesis, epidemiological and preventive implications. **Methods:** An integrative review of the literature was carried out in March 2018 in the PubMed and Science Direct databases. The descriptors used were: SCC, Young, HPV and Staging, combined by the AND modulator. Inclusion criteria were articles published in the last 10 years, related to the thematic and in the English, Portuguese and Spanish languages. In the PubMed were found 75 articles, after the application of the inclusion criteria were selected 64 articles for study. In the Science Direct were found 8 articles, after applying the selection criteria was

selected 1 article for analysis. Results: HPV subtypes 16 and 18 are the most virulent. HPV is carcinogenic through the E6 and E7 genes. E6 inactivates the tumor suppressor gene p53. E7 inactivates the tumor suppressor gene pRb, resulting in overexpression of the p16 tumor suppressor protein that is associated with a better prognosis. The impact of TNM staging changed over time, the effect of N staging on mortality reduced, while the impact of T staging increased. Conclusion: Protected sexual practice and vaccination are efficient measures for the control of SCC, HPV positive. Therefore, the campaigns should be extended to the male audience. In addition, the staging of the disease should be updated for a better prognosis.

Keywords: squamous cell carcinoma, young, human papillomavirus and staging.

RESUMO

Introdução: Tem-se observado aumento dos casos de Carcinoma de Células Escamosas (CCE) oral em pacientes Papilomavírus Humano (HPV) positivos. O perfil desses pacientes é caracterizado por homens jovens, não tabagistas e não etilistas. Isso é atribuído a mudanças da prática sexual, marcado por comportamento promíscuo. **Objetivo:** Compreender a carcinogênese do HPV, suas implicações, epidemiologia e estabelecer medidas preventivas. **Métodos:** Realizou-se uma revisão integrativa da literatura em março de 2018, nas bases de dados PubMed e Science Direct. Os descritores usados foram: CCE, Jovens, HPV e Estadiamento, combinados pelo modulador and. Os critérios de inclusão foram artigos publicados nos últimos 10 anos, relacionados com a temática e nos idiomas inglês, português e espanhol. **Resultados:** Os subtipos 16 e 18 do HPV correspondem as cepas mais relacionadas ao CCE. O HPV contribui para carcinogênese através dos genes E6 e E7. O gene E6 inativa o gene supressor tumoral p53. O gene E7 inativa o gene supressor tumoral pRb, resultando na superexpressão da proteína supressora tumoral p16 que está associada a melhor prognóstico. O impacto do estadiamento TNM mudou ao longo do tempo entre pacientes com CCE e HPV positivos. O efeito do estadiamento N na mortalidade desses pacientes reduziu, enquanto que o impacto do estadiamento T aumentou. **Conclusão:** A prática sexual protegida e vacinação são medidas eficientes para controle de CCE associados ao HPV. Por isso, é importante que essas campanhas sejam estendidas para o público masculino. Além disso, é preciso que o estadiamento da doença seja atualizado para melhor prognóstico.

Palavras-chave: carcinoma de células escamosas, jovens, papilomavírus humano, estadiamento.

1 INTRODUCTION

Over the years, the cases number of Oral Squamous Cell Carcinoma (OSCC) HPV-positive has been increasing. The profile of patients with OSCC, HPV-positive, tends to be characterized by a group of young men¹ (aged less than 60 years), nonsmokers and non-drinkers. This fact is attributed to changes of sexual practice, with more promiscuous sexual behavior². The HPV genome can be divided into three regions: a long control region (LCR), precocious region (E - early) and Late region (L-late). The E region is constituted by genes E1, E2, E3, E4, E5, E6 e E7. Among these, E1 is related to viral replication, E2 is associated to transcription and replication, E4 with viral maturation and intracellular matrix alteration. The

genes E5, E6 e E7 are related to cellular transformation. E6 protein blocks the action of TP53 tumor suppressor gene³. The viral E7 product inactivates the retinoblastoma (RB) protein, which leads to perturbation in transcription factors including E2F. Inactivation of RB leads to marked overexpression of the tumor suppressor protein p16, for which transcription is normally repressed by RB⁴.

2 OBJECTIVE

The objective of this study is to understand the carcinogenesis of HPV, the implications for the human health, the epidemiology and to establish preventive measures.

3 MATERIAL AND METHODS

Was made an integrative revision of literature, in march, 2018, based on data bases PubMed and Science Direct. The descriptors used were: squamous cell carcinoma, young, human papillomavirus and staging, combined between each other by the modulator and. The inclusion criteria used were articles published in the last 10 years, related to the subject, in the English, Portuguese and Spanish languages. The exclusion criteria used was articles not related to the subject. In the PubMed were found 75 articles, after the application of the inclusion criteria were selected 64 articles for study. In the Science Direct were found 8 articles, after applying the selection criteria was selected 1 article for analysis.

4 RESULTS AND DISCUSSION HPV

can be detected by using DNA-PCR and immunostaining of the p16 protein⁵. The tumor suppressor protein p16 overexpression is associated with better response to treatment, better prognosis and less local recurrence⁶. The survival advantage associated with HPV detection in the tumor was especially clear among patients who had received radiation therapy. The prognostic impact of TNM staging has changed significantly over time among patients with OSCC positive HPV. The effect of the N stage on mortality of these patients decreased over time, in the other hand, the impact of the T stage increased, so the staging system needs to be updated⁷.

5 CONCLUSION

This study confirms that vaccination campaigns are an efficient solution to control HPV-associated carcinomas. Considering that the prevalence of Squamous Cell Carcinoma HPV-positive is higher in man, it is extremely important that this campaign might also be extended

to the male group. Besides, the precocious diagnosis can be a way to improve the prognostic and the response to treatment.

REFERENCES

- 1- GAYAR, O. H. et al. Oropharyngeal Carcinoma in Young Adults: an Alarming National Trend. *Otolaryngology – Head and Neck Surgery: Official Journal of American Academy of Otolaryngology – Head and Neck Surgery*, v. 150, n. 4, jan. 2014. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/24452304>. Access in: 12 mar. 2018.
- 2- PETITO, G. et al. Human papillomavirus in oral cavity and oropharynx carcinomas in the central region of Brazil. *Brazilian Journal of Otorhinolaryngology*, v. 83, n. 1. 2017. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/27117892>. Access in: 12 mar. 2018.
- 3- SETHI, S. et al. Characteristics and Survival of Head and Neck Cancer by HPV Status: a Cancer Registry-Based Study. *International Journal of Cancer*, v. 131, n. 5. 2012. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/22020866>. Access in: 12 mar. 2018.
- 4- SALAZAR, C. R. et al. Combined P16 and human papillomavirus testing predicts head and neck cancer survival. *International Journal of Cancer*, v. 135, n. 10. 2014. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/24706381>. Access in: 12 mar. 2018.
- 5- MASAND, R. P. et al. Adenosquamous Carcinoma of the Head and Neck: Relationship to Human Papillomavirus and Review of the Literature. *Head and Neck Pathology*, v. 5, n. 2, jan. 2011. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/21305368>. Access in: 12 mar. 2018.
- 6- KO, H. C. et al. Prognostic implications of human papillomavirus status for patients with non-oropharyngeal head and neck squamous cell carcinomas. *Journal of Cancer Research and Clinical Oncology*, v. 143, n. 11, jul. 2017. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/28752235>. Access in: 12 mar. 2018.
- 7- KEANE, F. K. et al. Changing Prognostic Significance of Tumor Stage and Nodal Stage in Patients with Squamous Cell Carcinoma of the Oropharynx in the Human Papillomavirus Era. *Cancer*, v. 121, n. 15, ago. 2015. Available in: <https://www.ncbi.nlm.nih.gov/pubmed/25873094>. Access in: 12 mar. 2018.