Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Expression of p63 among cervical carcinoma patients

[1]Dr. Atul Vishnu Ranade, [2]Dr. Meghana Vinay Chougule, [3]Dr. Nilima Kadam, [4]Dr. Satvik Harish Kulkarni, [5]Dr. Pradnya Rajendra Khatavkar

[1]Reader, Department of General Pathology, Tatyasaheb Kore Dental College and Research Centre;
[2]Private Practioner, Kolhapur;
[3]Lecturer, Department of Periodontology, Tatyasaheb Kore Dental College and Research Centre;
[4]Dental Surgeon, Seva Rugnalay, Sub District Hospital, Kasaba Bawada, Kolhapur;
[5]Lecturer, Department of Periodontology, Tatyasaheb Kore Dental College and Research Centre

ABSTRACT:
Background: Cervical cancer is the fourth-most common cause of cancer in the women, worldwide and its incidence in young women is increasing year by year. Tumor protein P63 also known as transformation-related protein that in humans is encoded by the *TP63*gene. Hence; the present study was undertaken for assessing the expression of p63 among cervical carcinoma patients. **Materials & methods:** The study was conducted on 30 histopathologicaly proven cases of cervical carcinoma diagnosed in Department of Pathology. Detailed clinical data of the patient were recorded as per proforma attached. Tissue blocks were prepared from samples of cervical lesions obtained at department of pathology that were sent for hisopathological examination for doing IHC study. For IHC study expression of p63 was studied Histopathological examination of the tissues obtained was done after processing them to prepare paraffin blocks. Blocks were cut and stained with Haematoxylin and Eosin stain and studied under light microscope for classification and histopathological grading. Immunohistochemistry of the samples was done for p63. **Results:** In the well-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 30 percent, 50 percent and 20 percent of the patients respectively. In the moderately-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 70 percent and 30 percent of the patients respectively. In the poor-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 0 percent and 100 percent of the patients respectively. Significant results were obtained while comparing the expression of p63 among different grades of cervical carcinoma. **Conclusion:** Expression of p63 is significantly altered in cervical carcinoma patients.
Key words: Cervical carcinoma, p63

Received: 18 April, 2021 Accepted: 20 May, 2021

Corresponding author: Dr. Atul Vishnu Ranade, Reader, Department of General Pathology, Tatyasaheb Kore Dental College and Research Centre

This article may be cited as: Ranade AV, Chougule MV, Kadam N, Kulkarni SH, Khatavkar PR. Expression of p63 among cervical carcinoma patients. Int J Adv Med Dent Scie Res 2021; 9(5):66-68.

INTRODUCTION

Cervical cancer is the fourth-most common cause of cancer in the women, worldwide and its incidence in young women is increasing year by year. Cervical squamous intraepithelial lesion is an important transitional stage of normal cervical tissue transforming into Squamous cell carcinoma of the cervix over a period of time. HPV infection is identified in 99.7% of patients with cervical cancer. Whereas Human papilloma virus (HPV) infection rate in patients with Carcinoma in-situ (CIN)2/3 is 87% and 79% in those with CIN 1.[1, 2]

The overall rate of squamous metaplasia is 4.2% per year and it is proposed that each 1% metaplastic change per month is associated with a 17% increased risk for subsequent HPV16 infection.[3] Tumor protein P63 also known as transformation-related protein that in humans is encoded by the *TP63*gene. TP63 is normally expressed in breast, gynecologic tract, lung, prostate, skin, thymus and urothelium. In the female genital tract, p63 is expressed in the basal and parabasal cells of mature cervical, vaginal and vulval squamous epithelium, and also in cervical reserve cells at the transformation zone and in immature

metaplastic and atrophic cervical squamous epithelium.[4- 6] Hence; the present study was undertaken for assessing the expression of p63 among cervical carcinoma patients.

MATERIAL AND METHODS

The present study was undertaken for assessing the expression of p63 among cervical carcinoma patients. The study was conducted on 30 histopathologicaly proven cases of cervical carcinoma diagnosed in Department of Pathology. Detailed clinical data of the patient were recorded as per proforma attached. Tissue blocks were prepared from samples of cervical lesions obtained at department of pathology that were sent for hisopathological examination for doing IHC study. For IHC study expression of p63 was studied Histopathological examination of the tissues obtained was done after processing them to prepare paraffin blocks. Blocks were cut and stained with Haematoxylin and Eosin stain and studied under light microscope for classification and histopathological grading. Immunohistochemistry of the samples was done for p63.

Scoring criteria was done by Ivan D et al in their studies in the form of proportion of nuclear staining =score

Percentage positivity	**Score**	**Staining intensity**	**Score**
< 5%	0	Nil	0
5-25%	1	Mild	1
26-75%	2	Moderate	2
>75%	3	Severe/Strong	3

A final Immuno-score was calculated by adding scores of % and intensity and categorised as weak (1 to 2), moderate (3to 4) and strong (5 to 6**).** Interpretation and analysis of obtained data was done by using descriptive statistics.

RESULTS

Mean age of the patients was 49.2 years. Majority of the patients belonged to the age group of 40 to 60 years. In the well-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 30 percent, 50 percent and 20 percent of the patients respectively. In the moderately-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 70 percent and 30 percent of the patients respectively. In the poor-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 0 percent and 100 percent of the patients respectively. Significant results were obtained while comparing the expression of p63 among different grades of cervical carcinoma.

Table 1: Age-wise distribution

Age group (years)	Number of patients	Percentage
Less than 40	9	30
40 to 60	11	36.67
More than 60	10	33.33

Table 2: Overall Expression of p63 in carcinoma patients

Expression	Well differentiated Carcinoma (n=10)		Moderate differentiated Carcinoma (n=10)		Poor differentiated Carcinoma (n=10)	
	Number of patients	Percentage of patients	Number of patients	Percentage of patients	Number of patients	Percentage of patients
Mild	3	30	0	0	0	0
Moderate	5	50	7	70	0	0
Strong	2	20	3	30	10	100
Total	10	100	10	100	10	100
Chi-square value	2.45					
p- value	0.00 (Significant)					

DISCUSSION

Cervical cancer is preceded by a long period of premalignant disease. During this period of progression, different genes, such as E6 and E7 and disturbance of the cell cycle mechanism cause subsequent alteration in the expression of some proteins, such as p53, p63 and Ki-67.[6- 8] Hence; the present study was undertaken for assessing the expression of p63 among cervical carcinoma patients.

In the present study, mean age of the patients was 49.2 years. Majority of the patients belonged to the age group of 40 to 60 years. In the well-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 30 percent, 50 percent

and 20 percent of the patients respectively. Romus et al assessed the Clinicopathology Significance of p53 and P63 Expression in Cervical Squamous Cell Carcinomas in Indonesia. 56 cervical squamous cell carcinoma specimens were collected. Minimum age of patients was 32 years old and maximum 81 years old. The number of patients ≤ 54 year old was 51.8% (n=29) and patients >54 year old was 48.2% (n=27) and 76.8% (n=43) with morphology of non keratinized squamous cell carcinoma and 23.2% (n=13) with morphology of keratinized squamous cell carcinoma. The results for P63 expression in this study were in the range of 3%-98% with mean of 78.64%, 41 out of 56 samples were highly positive (80-98%), 11 out of 56 samples were moderately positive (30-<80%), 3 out of 56 samples were low positive (15-<30%) and 1 was negative (0<15%) in P63 staining. It was also found that there were no association between P63 expression with age, morphology and staging. Therefore their study assumed that P63 have important role in cell differentiation than prognostic factor.[9]

In the moderately-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 70 percent and 30 percent of the patients respectively. In the poor-differentiated carcinoma patients, mild, moderate and strong expression of p63 was seen in 0 percent, 0 percent and 100 percent of the patients respectively. Das et al studied P63 in normal, dysplastic, and cancerous cervical biopsies to assess their malignant potentiality. 44 samples were collected, of which 15 were from histologically confirmed dysplasia, that is CIN stage 2, 12 were from normal cervical mucosa and 17 were from squamous cell carcinoma. In normal cervical epithelium, P63 positive nuclei were only present in the basal region, but in dysplasia such nuclei were also observed in the upper layers and in case of cancer the positive nuclei extended throughout the whole epithelium. Furthermore, on transformation of the normal cervical mucosa to premalignant or malignant one, the percentage of P63 positive nuclei increased significantly with up-regulation of P63 ,highest expression was seen in frank malignancies.[10]

In the present study, significant results were obtained while comparing the expression of p63 among different grades of cervical carcinoma. Li et al examined the combination of cytokeratin 5/6, p63, p40 and MUC5AC for distinguishing squamous cell carcinoma (SCC) from adenocarcinoma of the cervix (AEC). A total of 101 SCC and 108 AEC were collected. Immunohistochemical analyses were conducted to determine the expression of CK5/6, p63, p40, CK7 and MUC5AC. MUC5AC and CK7 were detected in 81.48 and 82.41% of AEC cases compared to 9.9 and 49.50% of SCC cases ($P < 0.05$); the specificity of MUC5AC was higher than that of CK7 in AEC ($P < 0.05$). The sensitivity of MUC5AC combined with p40 or p63 was similar to that of CK7, but the specificity was slightly higher than that of CK7 in AEC. Moreover, the expression of MUC5AC was correlated with the degree of tumor differentiation in adenocarcinomas ($P = 0.036$) and was not related to the prognosis of cervical adenocarcinoma and subtypes.[11]

CONCLUSION

Expression of p63 is significantly altered in cervical carcinoma patients.

REFERENCES

1. Ginsburg O, Bray F, Coleman MP, Vanderpuye V, Eniu A, Sarker M,et al. The global burden of women's cancers: a grand challenge in global health. Lancet. 2016;389(10071):847-60.
2. Nath B N B, Vimala S. A Detailed Survey on the Impact of Cervical Cancer in Women. International J Innov Resear Comp Commun Engineer.2016; 4(5): 90- 91.
3. Sharma BK, Singh S. Cervical Cancer and its Demographic Factors at Central India. Int J Sci Stud 2016;4(4):79-82.
4. Kim SM, Lee JU, Lee DW, Kim MJ, Lee HN. The prognostic significance of p16, Ki-67, p63, and CK17 expression determined by immune-histochemical staining in cervical intraepithelial neoplasia. Korean J Obstet Gynecol. 2011;54(4):184-91.
5. Kaur H, Kaur S. Prevalence of carcinoma cervix in rural Punjab and need to create awareness regarding cervical cancer. Indian J Publ Heal Resea Develop. 2013; 43118.
6. Franco E. L. Cancer causes revisited: human papillomavirus and cervical neoplasia. J. Natl. Cancer Inst.1995;87(11):779-80.
7. Walboomers JM, Jacobs MV, Manos MM, Bosch FX, Kummer JA, Shah KV, et al.Human papillomavirus is a necessary cause of invasive cervical cancer worldwide.N.J Pathol. 1999; 189(1):12-9.
8. Hwang LY, Ma Y, Shiboski SC, Farhat S, Jonte J, Moscicki AB. Active squamous metaplasia of the cervical epithelium is associated with subsequent acquisition of human papillomavirus 16 infection among healthy young women. J Infect Dis. 2012;206(4):504-511.
9. Romus I, Triningsih FE, Mangunsudirdjo S, Harijadi A. Clinicopathology significance of p53 and p63 expression in Indonesian cervical squamous cell carcinomas. Asian Pac J Cancer Prev. 2013;14(12):7737-41.
10. Das L, Naskar S, Sarkar T, kumar A, Das S, Chatterjee J. Immunohistochemical evaluation of prime molecules in cervical lesions towards assessment of malignant potentiality. J Cancer Res Treatment. 2018; 14(2):377-81
11. Li H, Jing X, Yu J, Liu J, Zhang T, Chen S et al. A combination of cytokeratin 5/6, p63, p40 and MUC5AC are useful for distinguishing squamous cell carcinoma from adenocarcinoma of the cervix. Diagn Pathol. 2020;15(1):104.