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p16^{INK4a} in Oular Surface Squamous Neoplasia

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Ocular Surface Squamous Neoplasia (OSSN) is the most common tumour of ocular surface and encompasses both conjunctival intraepithelial neoplasia (CIN) and squamous cell carcinoma (SCC). p16^{INK4a} is a tumor suppressor protein, Its inactivation by aberrant methylation of CpG islands is frequent in various cancers. Sixty-four cases of OSSN and 15 normal conjunctival controls were included in this study. Immunohistochemistry and Methylation specific PCR was used to evaluate expression of p16^{INK4a} protein and its methylation status. Follow-up data (16 to 36 months) was available in 48 (75%) cases.

Loss of p16^{INK4a} immunoexpression was observed in 72% cases (48) and promoter hypermethylation in 53% (34). P16^{INK4a} promoter hypermethylation showed significant association with immunoexpression(P=<0.0001). Hypermethylation of p16^{INK4a} was not however associated significantly with any clinicopathological features or survival.

p16^{INK4a} Overexpression was observed in 18 (28%) OSSN and was absent in all control conjunctival tissues. p16^{INK4a} positive cases belonged to younger age group (P=0.03), had higher T stage (P=0.007), larger tumour size (P=0.04) and invasive SCC (P=0.03). Its expression was seen in all the cases with metastasis (6/6) (P= 0.0002) and death (4/4) (P= 0.004). Although in our study disease free survival was worst in p16^{INK4a} positive cases, the difference was not statistical significant (P=0.09).

Loss of p16^{INK4a} expression is frequent in OSSN cases and is caused by aberrant DNA methylation. Overexpression of p16^{INK4a} is a useful indictor of aggressive disease and suggests alteration in pRb pathway in this subset of tumors which may play an important role in the pathogenesis and progression of OSSN.

Biography

Ms. Sheetal Chauhan has completed her Ph.D work entitled “Molecular studies and expression of cell cycle regulatory proteins in Ocular Surface Squamous Neoplasia” from the department of ocular pathology, Dr. R.P Centre, All India Institute of Medical Sciences, New Delhi, India.. Her work in ocular oncology has been published in reputed international journas and national/international conferences.