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Correlation of histopathological high risk factors with Polo-Like Kinase 1 (PLK1) in retinoblastoma

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Retinoblastoma remains a therapeutic challenge for pediatric oncologists. Polo-like kinases (Plks), a family of conserved serine/threonine kinases, are important regulators of cell cycle progression for maintaining DNA integrity. Expression of PLK1 in retinoblastoma has not been studied so far and so its role remains unclear till now. Retrospective analyses of 30 primary enucleated retinoblastoma cases over a period of 2010-2011 were included in this study. PLK1 protein expression was performed by immunohistochemistry in formalin fixed retinoblastoma specimens. Cytoplasmic staining was graded as weak/negative (1+), moderate (2+) and strong (3+).PLK1 expression was correlated with tumour differentiation and histopathological high risk factors. The patients were followed up for one year. Out of 30 eyes, 22 were poorly differentiated retinoblastoma and 8 were well differentiated retinoblastoma. Extensive necrosis and calcification was found in 53.3% and 20% respectively. Histopathologically, 11 cases had massive choroidal invasion, 14 optic nerve invasion, 2 each scleral and anterior chamber, 3 with iris and ciliary body invasion. PLK1 expression was observed in 22/30 (73.3%) cases. Of the 22 cases, there were total of 17 cases in which more than one histopathological high risk factor was present. However, no statistically significant difference was seen between PLK1 expression and histopathological high risk factors. All the patients were alive without any recurrences until last follow up. Overexpression of PLK1 was observed in cases with one or more histopathological high risk factor in retinoblastoma. These findings suggest that PLK1 may be useful as prognostic marker in patients with Retinoblastoma.

Biography

Lata Singh is currently pursuing her Ph.D. from Department of Ocular Pathology, All India Institute of Medical Sciences (AIIMS), New Delhi, India. She has done Master in Life Sciences from Jamia Millia Islamia, India. She has qualified the CSIR-JRF fellowship. She is particularly interested in Retinoblastoma tumor. She is interested in finding diagnostic markers and the mutations in retinoblastoma apart from the RB1 gene mutation. She has publications in international journals.

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