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Expression of stem cell markers, CD133 and CD44 in pediatric solid tumours, a study using Tissue microarray

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Background: Based on cancer stem cell (CSCs) hypothesis, a small population of cells with unique self-renewal properties and malignant potential exists in solid tumors. Recent evidences indicate that transmembrane protein CD133 and adhesion molecule CD44, can be used as markers of CSCs.

Methods: Immunohistochemistry was performed to detect the expression of CD133 and CD44 in a series of pediatric solid tumours including 32 wilm's tumour, 18 neuroblastoma (NB), 30 Hodgkin and non-Hodgkin lymphoma, 4 Rhabdomyosarcoma, 4 Hepatoblastoma, 9 Teratoma, and 4 yolk sac tumour which have been previously included in tissue microarray. The association between expression of these markers and tumours characteristics were then analyzed.

Results: The cytoplasmic expression of CD133 in wilm's tumour, neuroblastoma and lymphoma were 44%, 39% and 24% respectively. Expression of CD133 in neuroblastoma patients with unfavorable histology was significantly higher than that in patients with favorable histology (p-value =0.011). Moreover, the positive rate of CD133 in younger children (< 51 months) was significantly higher than children over this age (p-value=0.025). CD44 was expressed in cell membrane of 43% of pediatric tumours and its expression was significantly associated with tumor size (p-value

Conclusions: CD133 can be an important indicator for prognosis of neuroblastoma, therefore this molecule may play a role as a potential clinical marker in younger children suffering from neuroblastoma.

Biography

Dr Zahra Madjd has completed her MD in Tehran, Iran and conducted her PhD and postdoctoral studies from Department of Clinical Oncology, University of Nottingham, UK. She is currently assistant professor of Immunopathology at Departments of Pathology and Molecular Medicine, also research deputy of Oncopathology Research Centre, Tehran University of Medical Sciences. She has published more than 28 papers in prestigious journals and serving as co-editor of "Iranian J Cancer Prevention".