J Clin Exp Pathol 2018, Volume 8
DOI: 10.4172/2161-0681-C2-049

Tumor infiltrating cytotoxic CD8 T-cells predict clinical outcome of neuroblastoma in children

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Neuroblastoma is often infiltrated by inflammatory cells. One possible role of these inflammatory cells is that they represent a cell-mediated immune response against cancer. CD8+ lymphocytes are a known crucial component of cell-mediated immunity. This study was to explore the prognostic value of tumor-infiltrating CD8+ cytotoxic lymphocytes in Neuroblastoma. Tumor-infiltrating CD8+ lymphocytes were assessed by immune-histochemical staining of tumor tissue from 36 neuroblastoma from April 2008 to May 2015. The number of CD8+ T-cells was counted in tumor nest (intra-tumoral) and in the fibrovascular stroma of tumor (peritumoral) and their relationship with clinicopathologic outcome was determined. The total number of CD8+ cells was inversely correlated with tumor histology grade ($P<0.001$), vascular invasion ($P<0.001$), capsular invasion ($P<0.002$), calcification ($P<0.005$), necrosis of tumor ($P<0.001$), regional lymph nodes invasion ($P<0.003$), distant metastasis ($P<0.003$), stage ($P<0.003$) and was positive correlated with N-myc oncogene presentation ($P<0.002$) in neuroblastoma. However, there were no correlation between patient's age, sex and size of tumor with infiltration of CD8+ cells ($P<0.097$, $P<0.142$ and $P<0.722$, respectively). In this analysis, total CD8 T-cell count was a dependent prognostic factor in children. Total number and stromal CD8 lymphocytes were associated with better patient survival ($P<0.003$ and $P<0.05$, respectively) in children. CD8 T lymphocytes have antitumor activity and influence the behavior of neuroblastoma and might be potentially being exploited in the treatment of neuroblastoma.

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