Expression of lung resistance protein and multidrug resistance-related protein (MRP1) in pediatric acute lymphoblastic leukemia

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Abstract

Multidrug resistance (MDR) is a phenomenon by which cells become resistant to unrelated chemotherapeutic agents. The prognostic value that lung resistance protein (LRP) and multidrug resistance-related protein 1 (MRP1) have in the setting of pediatric acute lymphoblastic leukemia (ALL) is controversial. The aim of this study was to investigate the expression of LRP and MRP1 and effect on clinical outcome and prognosis. The mRNA expression of LRP and MRP1 were analyzed in leukemic blasts of 34 pediatric ALL patients. LRP and MRP1 mRNA expression were detected in 41.2% and 35.3%, respectively. Eleven (91.7%) of 12 patients without LRP achieved CR compared with 9 (50.0%) of 18 with LRP expression. Similarly, 11 (100%) of 11 patients without MRP1 expression achieved CR compared with 9
(47.4%) of 19 with MRP1 expression and higher LRP expression rate or MRP1 expression rate was present in patients with relapse than MDR genes negative patients. The expression of either of two genes was associated with poorer 2-year survival. Also, patients expressing both genes had poorer outcomes and had worse 2-year survival. We suggest that MDR expression affects complete remission and survival rates in ALL patients. Thus, diagnosis appears to provide prognostic information for pediatric ALL.