Report of 20 years’ experience on the effect of intensive intrathecal hemotherapy on prognosis of childhood lymphoblastic leukemia with central nervous system (CNS) involvement

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Introduction: Primary central nervous system (CNS) involvement and CNS relapse are poor prognostic events in acute lymphoblastic leukemia (ALL). With cranial radiotherapy second CNS relapse or bone marrow (BM) relapse is usual. So prevention from CNS relapse is very important way to decrease both mortality and morbidity in childhood leukemia.

Method: In a prospective study from June 1995 to May 2014, thirty children with CNS involvement and 60 children with CNS relapse of Acute Lymphoblastic Leukemia (ALL) were enrolled in the study with written consent form. They randomly were divided in two groups: 30 patients in group A (as control group) received triple intrathecal (IT) injections every 2 months for three years; including A1: 15 control patients with primary CNS involvement; and A2: 15 control patients with CNS relapse. Sixty patients in group B (Case group) received further triple IT injections in the fourth and fifth years including B1: 20 cases of primary CNS involvement and 40 cases of CNS relapses. For each patient in group A, two age and sex matched patients were enrolled in group B. They had 2-15 years follow up.

Results: In group A1: 5 CNS relapses, 3 BM relapses and 2 deaths were occurred. Boys had more relapses and deaths than girls (Chi square=15.63, P value <0.001); most relapses were in the third to fifth years. In group A2: 7 second CNS relapses, 6 BM relapses and 2 deaths were occurred; most relapses were in the boys and in the third to fifth years; again boys had more relapses and deaths (P<0.005). In group B1, only 2 boys had CNS relapses; no BM relapse and no death was occurred. No relapse or death in girls was occurred (Fisher exact test: P<0.001). In group B2: 8 second CNS relapses; 3 BM relapse and 2 deaths were occurred (P<0.003). Most of the relapses were occurred in the third to fifth years of maintenance therapy. Overall even boys in groups B1 and B2 had lesser mortality and morbidity (Chi square=27.6, P<0.001) and better prognosis.

Conclusion: Extended intrathecal injections after discontinuation of maintenance chemotherapy is advisable for cases of primary CNS involvement and CNS relapses, however national and international studies with greater number of patients is suggested.

Biography

Mahdi Shahriari is currently working as an Associate Professor in Department of Paediatrics in Shiraz University of Medical Sciences, Iran since 1994. He has published many articles in reputed National & International Journals. His area of expertise include Medicine, Oncology, Hematology, Pediatric Hematology, Pediatric Oncology, Hemophilia, Thalassemia & Cord Blood Stem Cell Transplantation.

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