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Does Choice of Treatment Protocol have Impact on outcome in T-cell Lymphoblastic Leukemia?

We read the article by Arya, *et al.* on T-cell acute lymphoblastic leukemia (ALL) outcome with interest [1]. Although ALL outcome has improved in India but sepsis and loss to follow up remain barriers to improving outcome [2]. Here we describe impact of choice of protocol on patients with T-cell ALL at our center. Out of 288 children newly diagnosed as ALL between July 2005 to Jan 2011, 41 (14.2%) had T-cell ALL, which is similar to Western data 15-18% [3]. However, it is much lower than that reported by Arya, *et al.* (30%) [1]. Median age of presentation was 7.5 years (9 month-18 years) (M:F=6:1) and 34% aged >10 years. 39% patients had hyperleukocytosis (>50000/mm³), which is lower than 58.3% reported by Arya, *et al.* [1]. Children were treated as per BFM-95, UKALL-XI, MCP-841 and Interfant-99 protocols. Twelve (29.2%) were lost to follow up (LFU) and 29 opted for treatment, of these 24(82.7%) achieved complete remission (CR1). Four died in induction and one had refractory disease. Four died in remission. Nine (31%) relapsed (Medullary-4, combined-3, testicular-1, isolated CNS-1). Eleven (38%) patients are alive and in CR1. Eighteen patients were treated on BFM 95 protocol (14 medium risk and 4 high risk as per BFM-95 risk stratification), of these 13 achieved CR1, 4 died in induction and 1 had refractory disease. Out of 13, 8 are in CR1 (at median follow up of 2.5 years), one relapsed and 4 had remission deaths. Ten patients were treated on UKALL-XI protocol, 9 achieved CR1 and 1 died in induction. Out of 9 in CR1, 7 relapsed, 1 alive and 1 LFU. Two patients were treated on MCP-841 protocol one is in CR1 and 1 LFU. One infant was treated on Interfant-99 protocol who relapsed at 18 months from diagnosis and

died. Relapse rate was significantly lower for more intensive BFM-95 as compared to UKALL-XI protocol (*P*-value 0.001). However treatment related mortality was very high (44%) for BFM-95 as compared to 10% for UKALL-XI protocol. Our results are inferior to original BFM-95 protocol (74.8% 6-year event free survival (EFS) in T-cell ALL) [4] while UKALL XI protocol [5] showed 61% 8-year EFS with no separate data for T-immunophenotype. We conclude that choice of treatment protocol has huge impact on outcome in T-cell ALL.

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