ONCODAILY MEDICAL JOURNAL

abstract

Arsenic Trioxide and All-trans Retinoic Acid Treatment for Acute Promyelocytic Leukaemia in All Risk Groups: Experience in a Tertiary Level Pediatric Hospital in Bangladesh

Belayet Hossain, Abdul Wohab, Umme Nushrat, Sajeda Sultana, Nilufer Aktar

DOI: 10.69690/ODMJ-018-0425-1571-1790

SIOP Asia, 2025, Saudi Arabia

abstract

Arsenic Trioxide and All-trans Retinoic Acid Treatment for Acute Promyelocytic Leukaemia in All Risk Groups: Experience in a Tertiary Level Pediatric Hospital in Bangladesh

Author: Belayet Hossain, Abdul Wohab, Umme Nushrat, Sajeda Sultana, Nilufer Aktar

Affiliation: Bangladesh Shishu Hospital & Institute, Dhaka

DOI: 10.69690/ODMJ-018-0425-1571-1790

Introduction: Acute promyelocytic leukemia (APL) represents a paradigm of precision medicine characterized by the presence of the PML-RARA fusion transcript. The introduction of all-trans retinoic acid (ATRA) and arsenic trioxide (ATO) completely revolutionized the therapeutic approach to this previously highly fatal disorder. We conducted this study to see the safety and effectiveness of this treatment in pediatric patients with APL.

Methodology: In this study, 35 eligible patients aged up to 18 years with acute promyelocytic leukaemia of standard and high-risk groups, confirmed by the presence of the PML-RARA transcript and without significant cardiac or pulmonary comorbidities were enrolled in the Department of Pediatric Hematology & Oncology, Bangladesh Shishu Hospital & Institute to receive treatment with ATRA and arsenic trioxide. The dose of arsenic trioxide was 0.15 mg/kg/day and ATRA 45 mg/kg/day in two equally divided doses throughout the Induction and Consolidation phases.

Results: After a median follow-up of 36 months, the 2-year overall survival rate was 98% (95% CI, 96 to 99) in the standard-risk group and 94% (95% CI, 90 to 99) in the high-risk group (P = .088). The 3-year event-free survival was 96% (95% CI, 93 to 99) in the standard-risk group and 89% (95% CI, 83 to 96) in the high-risk group (P =.252). Four patients developed differentiation syndrome among them one patient expired.

Conclusion: Arsenic Trioxide combined with ATRA is effective and safe in pediatric patients with APL, though long-term follow-up is still needed.