MM-1_V1.2
INFECTION COMPLICATIONS DURING INDUCTION CHEMOTHERAPY IN CHILDREN WITH ACUTE MYELOID LEUKAEMIA

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Background: Infections are an important cause of morbidity and mortality for children with acute myeloid leukemia (AML) and is likely related to the intensity of their therapy resulting in repeated episodes of prolonged and profound neutropenia. Lack of studies in the Indian scenario on this aspect have tempted us to attempt this study.

Method: Prospective study was done in department of Pediatric oncology with the aim of analysing the infectious complications occurring during induction chemotherapy in children below 14 years undergoing treatment for acute myeloid leukemia. Children with newly diagnosed AML by standard bone marrow examination and flow cytometry were included. Induction chemotherapy was with standard AML 7+3 induction protocol after securing a central venous access (PICC line/ Broviac) in all patients. All children received prophylactic fluoroquinolones and antifungals in post induction period. All the infectious complications during the induction chemotherapy were analysed.

Result: From the total 17 children included in the study, a total of 27 induction cycles (there were 3 mortality during 1st induction and 4 children have completed only 1st induction cycle) of chemotherapy were studied for infectious complications. The mean age at diagnosis was 5yrs (8months – 13years) and male: female ratio was 1:0.7. AML M5 accounted for the majority of diagnosis (85%); the rest being AML M2 (23.4%), AML M4 (5.8%) and AML M1 (5.8%). There were a total of 44 infectious events (16 infection/induction cycle), of which 40% (n = 19) were microbiologically proven. Of the total infections (n = 44), pneumonitis constituted the majority (29.5%, n = 13) closely followed by skin infections (27.3%, n = 12), GIT (20.5%, n = 9), septicemia (20.5%, n = 9) and UTI (2.2%, n = 1). There were 3 incidents of fever with unknown origin. Bacterial infections outnumbered infections by other organisms constituting 79% (n=15) of all the proven infections. Among the bacterial infections, gram negative organisms were isolated in most of the infections (75%, n = 10). 3 children had fungemia with candida parapsilosis and were appropriately treated. 3 children had varicella zoster infection and were treated with acyclovir for 14 days and other supportive care and none of the children with varicella infection had serious complications. There was one child with incidentally detected pin worm infestation. There was no Catheter related Blood stream infection. Differentiation therapy with ATRA and ATO is highly effective for management of APML. This therapy is very well tolerated. For parents who cannot afford ATRA, ATO alone can be used with or without an anthracycline depending on the total WBC counts. A small proportion of children may develop Differentiation syndrome with the use of these drugs, but this complication can be effectively managed with use of dexamethasone.

Conclusion: Differentiation therapy with ATRA and ATO is highly effective for management of APML. This therapy is very well tolerated. For parents who cannot afford ATRA, ATO alone can be used with or without an anthracycline depending on the total WBC counts. A small proportion of children may develop Differentiation syndrome with the use of these drugs, but this complication can be effectively managed with use of dexamethasone.

MM-1_V1.4
CHILDHOOD ACUTE PROMYELOCYTIC LEUKAEMIA (APML): EARLY MORTALITY IS A MAJOR HINDRANCE TO ANOTHER OUTSTANDING EXCELLENT SURVIVAL: A 12-YEARS’ STUDY

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Background: APML is considered to have a favorable outcome. Early mortality is however a concern and is often not highlighted.

Methodology: A retrospective study of children (<13-years) with APML treated over a 12-years period (2004-2015) at a single center is presented. Chemotherapy was ATRA/anthracycline/ cytarabine based (Modified PHEMA). Induction was followed by 3-courses of consolidation and maintenance for 2-years. Patients were classified based on WBC as standard (<10x10^9/L) or high risk (≥10x10^9/L).

Results: The cohort included 41 patients. The median age was 8-years (range: 1–13) with an M:F of 1.7:1. Four patients did not opt for treatment. Three patients were moribund and expired within 2-days of hospitalization. Cytogenetic/molecular confirmation was available in 20 (48%). In the remaining, diagnosis was based on morphology/cyto-chemistry. Nineteen (46.3%) patients were high-risk. The mean dose of ATRA was

MM-1_V1.3
USE OF DIFFERENTIATION THERAPY FOR MANAGEMENT OF ACUTE PROMYELOCYTIC LEUKAEMIA: A SINGLE CENTER EXPERIENCE OVER LAST 3YRS

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Background: Acute promyelocytic leukemia (APML) has become a highly curable disease with the advent of differentiation therapy with all-trans retinoic acid (ATRA) and Arsenic Trioxide (ATO). As reported in several large multicenter trials, it has been shown that addition of ATRA to the standard chemotherapy results in overall remission rates of up to 95% and cure rates now exceeding 80%. ATO is also highly effective in the treatment of APML. Studies have found that the combination of ATRA and ATO provide excellent results and are considered standard of care by many centers. The problems with the use of this combination includes a higher risk of differentiation syndrome and increased cost of treatment. In order to overcome this cost barrier, studies from India have shown that ATO alone can provide excellent outcomes in low risk patients and reasonably good outcomes even in high risk patients with APML.

Method: This was a retrospective, observational study conducted in the Pediatric Oncology Unit at KGMU, Lucknow. Case records of all newly diagnosed APML from 01/09/2013 to 31/08/2016 were reviewed. Diagnosis of APML was suspected on the basis of bone marrow morphology and flow cytometry and confirmed by detection of PML:RARα translocation by FISH or PCR. The treatment protocol followed at our center was either a combination of ATRA+ATO (for patients who could afford ATRA) or ATO alone (for those who could not afford ATRA). One or two doses of Daunorubicin was used during induction in children who developed a high WBC count. Clinical details, treatment and outcome details of all these children were recorded and analyzed.

Result: In the 3yr period, 65 children were diagnosed as acute myeloid leukemia. Among them, nine patients (14%) were confirmed as APML. Median age at presentation was 96 months (Range 36–150 months). Five children of APML presented with bleeding manifestations; six children were high-risk (initial WBC count more than 10,000/μl/mm). While 5 patients were treated with a combination of ATRA and ATO, the remaining 4 received only ATO as the differentiation therapy. Daunorubicin was used in 5 children. All the children tolerated their therapy well. In the 4 children who had received ATO alone, there were no complications. In the 5 children who received a combination of ATRA+ATO, one child had features of differentiation syndrome (tachypnea, weight gain) which improved with adding Dexamethasone. There were no deaths. While 7 children have completed their therapy, 2 are currently on treatment. All the 7 children who have completed their treatment are in molecular remission (undetectable PML-RARα transcripts by PCR). None of them have relapsed. The median follow up duration of these 7 children is 15 months (range 11–36 months).

Conclusion: Differentiation therapy with ATRA and ATO is highly effective for management of APML. This therapy is very well tolerated. For parents who cannot afford ATRA, ATO alone can be used with or without an anthracycline depending on the total WBC counts. A small proportion of children may develop Differentiation syndrome with the use of these drugs, but this complication can be effectively managed with use of dexamethasone.