FEASIBILITY, SAFETY & EFFICACY OF AN ANTHRACYCLINE CONTAINING INDUCTION PROTOCOL FOR CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA IN MALAWI

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BACKGROUND

- Success achieved in the treatment of acute lymphoblastic leukaemia (ALL) in high income countries (HIC) has not been replicated in low income countries (LIC), such as Malawi.
- Treatment regimens used in HIC are deemed unpractical in Malawi due to limited supportive care infrastructure and drug supply shortfalls.
- The induction phase of ALL treatment poses the greatest risk for treatment related morbidity and mortality
- Low intensity ALL treatment regimens advised for use in LIC have an unproven track record for long term survival and cure.
- We describe our experience of using an anthracyline based regimen.

MATERIALS AND METHODS

- From 15th July 2015 to 30th April 2016, all children with ALL or lymphoblastic lymphoma (LBL) were treated using a backbone of the UKALL 2011 regimen B protocol
- The drug regimen used was :Dexamethasone 5mg/m^2/day twice daily for 14 days; Doxorubicin 20-25mg/m^2/day on days 2, 9, 16 and 23; Vincristine 15mg/m^2 on days 2,9,16,23 and 30. Asparaginase was available for only 5 (38%) children, and dosed at 10,000 units/m^2 on days 4,5,6 and 7.
- Retrospective review of data collected on the demographics, baseline clinical and haematological features, toxicity, and remission status at the end of induction.
- Supportive care was standardized with allopurinol and IV fluids to prevent tumor lysis syndrome, and Cotrimoxazole and Ciprofloxacin to prevent infection.
- Peripheral venous access was used for treatment/supportive care.
- All leukaemia diagnoses and remissions were confirmed by evaluation of bone marrow morphology. Both cases of T cell LBL/leukaemia were confirmed by immunophenotyping.

RESULTS

- 13 children (11 ALL and 1 LBL) were treated on this protocol.

- BASELINE CHARACTERISTICS
- 7 (53%) were male
- Median age was 9.3 years (range 2.7-15.4)
- Median duration of symptoms at presentation: 3.5 weeks (range 1-12 weeks).
- Median WCC: 66 X10^6/L (range 3.3-380)
- Median haemoglobin: 66g/L(range 36-118)
- Median platelet count: 17 X10^9/L (range 3-60)
- 8/12 (66%) patients were NCI high risk for age (6/13, 46%) and/or WCC (8/13, 60%)(Fig. 1)
- No extramedullary disease identified in all cases
- 1 (8%) patient was lost to follow up, early on in treatment.

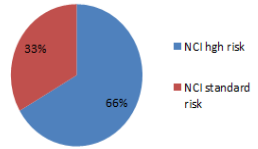
- TOXICITY
- Mucositis ≥ grade 2: 6/10 (60%) of 10 evaluable cases
- Febrile neutropenia: 8/10 (80%) evaluable cases.
- No other toxicity observed.

- OUTCOMES
- 29 day Overall survival: 1/12 (85%). 1 child died from sepsis, 1 died from unexplained sudden cardiac arrest.
- 29 day CR rate: 8/10 (80%) of evaluable cases.
- Both non CR cases had bulky disease T cell lymphoblastic lymphoma/leukaemia.

- Ten (83%) of 12 evaluable children survived to the end of induction.

- 3 months EFS : 9/10 (90%) for children surviving induction, 100% for all 8 children achieving day 29 CR.

Fig. 1



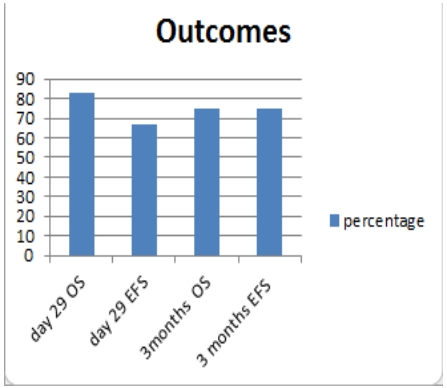


Fig. 2

CONCLUSIONS

A standard anthracycline containing ALL induction protocol appears to be feasible, safe and effective for children in poor resource settings, such as Malawi.