

**Title:** Time to detection of anemia and its predictors among children living with HIV at Debre Tabor and University of Gondar Compressive Specialized Hospitals, 2020: a multicentre retrospective follow-up study

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## Abstract

**Background:** Even though antiretroviral therapy access for HIV infected children increased dramatically, anemia have been continued as a challenge regardless of a cluster of differentiation (CD4) count and viral load. Hence, this study aimed to assess the time to detection of anemia and its predictors among children living with HIV at Debre Tabor and university of Gondar compressive specialized hospital, 2020.

**Methods:** A retrospective follow-up study was conducted from January 2010 to December 2018. A total of 372 children under the age of 15 who had received ART were included in the study. Data were collected from children's medical charts and ART registration logbook using a standard checklist. Besides, the data were entered into Epi data 4.2.2 and then exported to Stata 14.0 for further analysis. The Cox regression model, the variables having P-value  $\leq .05$  with 95% CIs in multivariable analysis were declared as statistically significant for anemia. **Result:** The mean ( $\pm$ SD) of follow-up periods were  $56.6 \pm 1.7$  SD months. The overall median survival time free from anemia was 137 months, and the incidence rate of anemia was 6.9 per 100 PYO (95% CI: 5.3, 7.8). Moreover, WHO clinical staging of III/IV [AHR: 4.2, 95% CI: 1.80, 11.1], low CD4 count below threshold [AHR: 1.9, 95% CI: 1.09, 3.37], cotrimoxazole preventive therapy non-users, and poor level of adherence [(AHR: 2.4, 95% CI: 1.20, 4.85)] were the main predictors of the time to detection of anemia.

**Conclusion:** The incidence rate of anemia in our retrospective cohort was high. The risk of anemia is present in children living with HIV infection but the risk for anemia is increased based on (WHO clinical staging III and IV, CD4 count below the threshold level, CPT non-users, and poor level of adherence). Since many of these risk factors are present routinely, even within one single patient, our clinical monitoring for anemia quarterly was fully justified as was our routine switch from standard therapies such as AZT to another regimen upon lab confirmation of anemia. Additional methods to improve cotrimoxazole preventative therapy and level of adherence are also needed.

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