TREATMENT OUTCOMES IN A COHORT OF YOUNG CHILDREN ON HIGHLY ACTIVE ANTIRETROVIRAL THERAPY IN RURAL BELA – BELA, SOUTH AFRICA

By

DOUKAGA – KEBA. BREST

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Supervisor: Prof P.O Bessong

Co – Supervisor: Prof A.M Amosu

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ABSTRACT

Background

South Africa is one of the countries in sub-Saharan Africa with a large antiretroviral therapy coverage. Evidence on long term treatment outcomes among children is beginning to emerge, but the situation in rural communities remains unclear. This study sought to evaluate treatment outcomes among children under 15 years old receiving highly active antiretroviral therapy (HAART) in a non-governmental treatment centre in Waterberg district, South Africa.

Objective: The objective of the study was to describe survival, immunologic and virologic outcomes in children receiving first-line HAART regimen over a maximum period of 54 months in the Wellness Clinic of the HIV/AIDS Prevention Group (HAPG) in Bela Bela, South Africa.

Methods: This was a longitudinal, observational, single-cohort, retrospective study. Treatment datasets containing information on gender, age, start date of treatment, type of treatment regimen, duration on treatment, date of switch in treatment, and date of deaths of 53 children under 15 years of age were collected, after ethical approval and permission from the health institutions had been obtained.

Results: Of the 53 children 28 (52.8%) were females. The age range of the study population was 5-10 years. The median $CD4^+$ cell count at treatment initiation was 338 cells/mm^3, (interquartile range, 7–1441). The median viral load was 5 log copies/ml (interquartile range, 2.01 – 5.78). The average time of viral load suppression to below the limit of detection (50 RNA copies/mm^3) and to an average $CD4^+$ cell count recovery above 600 cells was 2 months. At 54 months, viral load remained below the limit of detection, while the average $CD4^+$ cell count was 1000 cells/mm^3 compared to the average baseline of 338 cell/mm^3). There was no significant difference between males and females in terms of average $CD4^+$ cell counts (366 cells/mm^3 versus 337cells/mm^3 respectively; $p > 0.05$). Females experienced better improvement in $CD4^+$ cell count recovery than males, (1082 cell/mm^3, IQR 336-1365 for females; 666 cell/mm^3, IQR 337-936 for males). On the other hand, males experienced a significantly better viral

suppression than females, (1.7 log copies/ml, IQR 1.7-5.01 for males; 1.7 log copies/ml, IQR 1.7–5.09 for females, $P < 0.05$). Three of 25 males (12%) and 11/28 (39.2%) of females experienced virologic rebound after 6 months. At 12 months and above after treatment initiation, 2/25 of males (8%) and 2/28 (7.1%) of females experienced virologic failure. The number of deaths was 6 for each gender (22.6%). The deaths occurred at 35 months following treatment initiation.

Discussion

This study examined treatment outcomes in children under HAART at a rural treatment centre in Bela Bela, South Africa. An appreciable treatment outcome, in terms of significant virologic suppression and immunologic recovery, was on average observed in the cohort over a 54 month duration. However, a fairly large number of children died (12/53) within the study period. Unfortunately, the cause of the deaths were not accounted for in the retrospectively collected dataset, and further analysis could not be performed in this regard.

Conclusion

Despite the relatively small population size, the current study has shown that young children can benefit significantly from HAART. However, it is important that causes of death in the young population are documented, so that steps could be taken to enhance their management under HAART.

Keywords: Highly active antiretroviral therapy; Treatment outcome; Viral load; $CD4^+$ cell count; Bela Bela; South Africa.