

Transcriptome Dynamics of CD4⁺ T Cells during Malaria

Allison Tatarsky*

University of California San Francisco, San Francisco, California, US of America

Brief Commentary

Evidence for Elimination (E4E) may be a collaborative project established in 2012 as a part of the INSPIRE (Integrating and Scaling up PMTCT through Implementation Research) initiative. Aimed toward improving retention-in-care of HIV-infected pregnant women and mothers. In November 2013, Zimbabwe adopted Option B⁺ for HIV-positive pregnant women under which antiretroviral treatment eligibility isn't any more supported CD4 count. The study also compares rates of initiation and time-to-initiation between the two arms and consistent with level of maternal CD4 count, the value of retaining HIV-positive pregnant women in care and therefore the acceptability and feasibility of POC CD4 within the context of Option B⁺.

The introduction of the choice B⁺ policy, which provides lifelong ART for all HIV-positive pregnant and breastfeeding women, eligibility assessment for ART supported CD4 count is not any longer required. However, MOHCC guidelines still require baseline and 6-monthly CD4 testing for ART monitoring, until viral load testing becomes widely available.

Considering the present limited capacity for viral load testing, critical resource constraints, the recent heavy investments in CD4 testing capacity (both

POC CD4 and conventional), and therefore the historical reliance on CD4 by health care workers (HCWs) for determining eligibility for ART, important implementation questions emerged regarding the continued role of CD4 testing. Especially, the MOHCC sought to know the impact of both patient and HCW knowledge of CD4 count and counselling on patient behaviour under Option B⁺ specifically behaviours influencing initiation and adherence to ART.

Outcome measures were derived from routine health systems data. Data quality is being evaluated at baseline, midpoint, and end of study, using an EXCEL-based Data Quality Assessment tool adapted from the MEASURE RDQA tool kit feedback on findings are given to HCWs and district supervisors to tell improvements.

Multiple studies show that O × 40 signalling is vital for promoting effector CD4 T cell proliferation and survival established malaria also can enhance the function of memory CD4 T cells. O × 40 signalling is understood to activate the phosphatidylinositol-4, 5-bisphosphate 3-kinase. We examined the dynamics of CD4⁺T cell memory development employing a model of malaria and treatment with antimalarial. We mapped transcriptomic change as CD4⁺ T cells gradually transitioned from effector to memory over four weeks, and in doing so inferred genomic relationships between TFH, TH1, Tr1, GC TFH, TCM, and TEM, naive, proliferating and exhausted cells.

***Address for Correspondence:** Allison Tatarsky, University of California San Francisco, San Francisco, California, us of America, E-mail: atatarsky@clintonhealthaccess.org

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