JBR Journal of Clinical Diagnosis and Research

- · ¼ µ Ã ³ ³ Â ¯ º • – º · ¼ — · ¯ — ¢ œ

Short Communication Open Acces

$PNQBSBUJWF &WBMVBUJPO CFUXFFO UIF /FX 4UBOEBSE #% '"$4 $PVOU 4ZTUFN CZ &OVNFSB -ZNQIPDZUFT JO "EVMUT 1SFMJNJOBSZ 3FTVM

Zingue D [1]*, Hien H [1,2], Drabo A [1], Nouctara M [1], Kabore A [1], Ouedraogo O [1] and Meda N [1,3]

[1]Centre Muraz, Ministry of Health/Burkina Faso, West Africa
[2]Institut de Recherche en Sciences de la Santé (IRSS/DRO)/Burkina Faso, West Africa
[3]UFR Sciences de la Santé, Université de Ouagadougou/Burkina Faso, West Africa

Abstract

Background: The purpose of this study was to evaluate the performance of the new BD FACS Count System compared to the standard BD FACS Count system for count of lymphocytes TCD4.

Methods: It was a comparative study conducted in Centre MURAZ research institute. The New BD FACS Count System dedicated to enumerate absolute and percentage of TCD4+ was compared to the standard BD FACS Count System dedicated to enumerate only absolute number of TCD4+, TCD8+, TCD3+ and the CD4/CD8 ratio. Results were analyzed by Meth Val software.

Results: The New BD FACS Count System compared favorably with the BD FACS Count System for absolute 7&' UHVXOWLQJ LQ DQ RYHUDOO FRUUHODWLRQ FRHI¿FLHQW RI IRU WKH SD

Conclusion: The New BD FACS Count System is simple to perform as the old system and was an excellent alternative method to manage adults HIV in resource limited settings.

Keywords: BD FACS count system; TCD4+ absolute; HIV; Adults; Resource limited settings; Burkina Faso

Introduction

TCD4+ cells are the target cells for human immunode ciency virus (HIV). Patients TCD4+ levels is the most important parameter for assessing HIV progression, help to determine risk for opportunistic infections, evaluate if the patient should be placed on antiretroviral therapy (ART) and indicate also if the therapy provided is e cacy [1]. WHO/UNAIDS recommended since 2010 the use of ART treatment cut-o of less than 350 TCD4+/ l for adults and adolescents then since 2013, the limit of TCD4+ to treat has been update at 500/ l [2,3]. However, US Centers for Disease Control and Prevention (CDC) has established a treatment cut-o TCD4+ percentage of <25% for infants under 11 months of age, <20% for children up to 3 years of age, and <15% for children between 3 and 5 years of age [4]. Conventional ow cytometry is the most accepted gold standard to enumerate absolute and percentage of TCD4+ for adults and infants HIV infection management. But, they are very expensive and complex for resource limited settings. e standard BD FACSCount™ System was developed as an alternative method and dedicated for absolute counting of TCD4+, TCD8+, TCD3+, CD4/CD8 ratio and without simultaneous percentage of lymphocyte. e new BD FACSCount™ system is dedicated to provide simultaneously absolute and percentage results of TCD4+ for adults and infants HIV management. e main study conducted by Pattanapanyasat et al. with the new BD FACS Count was observed good performance with this device in comparison with the gold standard ow cytometry [5].

Before using the new BD FACS Count System for routine TCD4+ management in Burkina Faso, preliminary study was conducted at Centre MURAZ research institute with a few samples of specimen. e purpose of the study was to evaluate the performance of the new BD FACS Count System in comparison with the standard BD FACS Count system for absolute TCD4+ counting as a tool for adults TCD4+ management.

Materials and Methods

Design

A small comparative study was conducted in 2010 at Centre MURAZ to compare the standard and the new so ware of BD FACS Count System for their capacity to deliver the same results of absolute TCD4+ using adult's blood. It was a study to perform an in house comparative evaluation prior to switching the new reagents and the new so ware of BD FACS Count System before using for routine TCD4+ counting.

Adult's HIV-1, negative and unknown serology participants were included in the study to carry out for absolute TCD4+ and TCD4+ percentage by both two systems of BD FACSCount.

Subjects

K3EDTA venous whole blood sample were collected from 3 HIV-seropositive, 6 HIV seronegative and 1 unknown HIV statuses, and then processed for lymphocytes enumeration within 6 hours. Participant's age was between 22 and 40 years.

Procedures

BD FACS Count System (V1.4, Becton Dickinson, San Jose, CA): standard/reference:Standard BD FACS Count System with

*Corresponding author: Zingue D, Centre Muraz, Ministry of Health/Burkina Faso, PO Box 390, Burkina Faso, West Africa, Tel: 226 20 97 01 02; Fax: 226 20 97 04 57; E-mail: zinguedezemon@yahoo.fr

Received December 13, 2013; Accepted February 04, 2014; Published February 10, 2014

Citation: Zingue D, Hien H, Drabo A, Nouctara M, Kabore A, et al. (2014) Comparative Evaluation between the New BD FACS Count System and Standard BD FACS Count System by Enumeration of Absolute TCD4 Lymphocytes in Adults: Preliminary Results. J Clin Diagn Res 2: 103. doi: 10.4172/ .1000103

so ware V1.4 was used as reference method for the determination of absolute TCD4+cell counts according to the manufacturer's operating procedure. Its reagent kit is provided in a two-tube format containing the antibodies tube of CD4/CD3 reagents with reference beads and tube of CD8/CD3 reagents with reference beads. In standard FACSCount method, 50µl of EDTA uncoagulated whole blood was added to the two-tubes (CD4/CD3 reagent tube, CD8/CD3 reagent tube) using a pipette. ey were vortexed for 5 seconds and incubated in the dark at room temperature for 60 minutes. en, 50 µl of a xative solution was added to the tubes. e tubes were vortexed, and the non lysed stained sample was analyzed in FACSCount using the standard so ware.

BD FACS count system (V1.3, Becton Dickinson, San Jose, CA):