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CD4 counts in capillary and venous blood samples

The CD4 cell count is a significant indicator of immune function and remains an important tool to monitor disease progression and predict overall survival in HIV-infected individuals. The gold-standard technology for determining a CD4 cell count is flow cytometry using whole blood collected by venipuncture. Technological advances now allow for the accurate measurement of CD4 cell counts in near-patient platforms, using small sample volumes such as capillary blood from fingerstick samples. To determine whether capillary samples are suitable alternatives to venipuncture samples for CD4 cell count assays, results from paired venous and capillary samples need to be carefully compared. Literature reports were examined in the context of the physiological differences in sample types, as well as the potential clinical impact of the sampling methods and testing technologies. A trend of approximately 5% positive bias was revealed in CD4 counts from capillary samples compared to venous samples when using the same cell counting technology in adult HIV patients. In practice, this small difference in CD4 cell count is insignificant in most circumstances, and CD4 cell counts obtained from capillary blood samples are equivalent to results from venous blood samples if the proper sampling method is followed. Clinicians can now focus on factors related to patient health rather than sample type and testing platform as they use the CD4 cell count to make patient management decisions.

Biography

Wei Huang has completed his PhD in Chemistry from University of Kentucky and Post-doctoral studies from University of California, Davis. He is currently a staff Research Scientist at BD Biosciences at San Jose, California. He has spent many years in the drug discovery industry and worked on antiretroviral drug development at Gilead Sciences, one of the leading pharmaceutical companies for HIV drugs. At BD Biosciences, he has worked on the development of the FACSPresto™ near-patient CD4 counter, which received CE-IVD and 510(k) clearances.

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