Data in Brief 8 (2016) 1044–1047

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

Data on pro-inflammatory cytokines IL-1β, IL-17, and IL-6 in the peripheral blood of HIV-infected individuals

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ARTICLE INFO

Article history:
Received 31 May 2016
Received in revised form
7 July 2016
Accepted 13 July 2016
Available online 19 July 2016

Keywords:
Cytokines
HIV
Inflammation
Oxidative stress

ABSTRACT

Our most recent data indicate differences in the levels of pro-inflammatory cytokines (IL-1β, IL-17, and IL-6) and mal-ondialdehyde (MDA), a stable end-product of lipid peroxidation in the plasma samples between HIV positive individuals with low CD4 T cell counts < 200 mm^3 and HIV positive individuals with CD4 T cell counts between 200 and 300 mm^3 (ee). The data lend support and provide valuable correlation between CD4 T cell counts and the levels of inflammatory cytokines in HIV positive individuals.

Specifications Table

Subject area	*Biology* *Immunology, Infectious disease, oxidative stress*

DOI of original article: http://dx.doi.org/10.1016/j.bbacli.2016.05.006
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http://dx.doi.org/10.1016/j.dib.2016.07.023

More specific subject area	
Type of data	*Figures*
How data was acquired	*Data were obtained by using the Microplate Reader Instrument (Bio-Tek Multimode Instrument, VT, USA), KC4 Data Collection Software, and analyzed with Graph Pad Prism.*
Data format	*Raw and analyzed*
Experimental factors	*Whole blood from HIV-1 subjects with* CD4 T cell counts < 200 mm^3 [$n=15$] and CD4 T cell counts 200–300 mm^3 will be referred as CD4 > 200} [$n=15$] *were obtained from the Riverside County Regional Medical Center in Moreno Valley, CA.*
Experimental features	*Whole blood specimen was processed using density gradient centrifugation in order to obtain plasma samples. ELISA and colorimetric kits were used for determining the levels of pro-inflammatory cytokines (IL-1β, IL-17, and IL-6) and MDA in the plasma obtained from individuals with HIV-1 infection.*
Data source location	*Department of Basic Medical Sciences, College of Osteopathic Medicine of the Pacific and Graduate College of Biological Sciences Western University of Health Sciences, Pomona, CA 91766.*
Data accessibility	*Data are in this article*

Value of the data

- The data is important as it can provide researchers and medical practitioners a better understanding of the changes in the levels of pro-inflammatory cytokines and free radicals in HIV positive subjects with CD4 T cell counts < 200 mm^3 [$n=15$] and those with CD4 T cell counts > 200 mm^3 [$n=15$].
- The data shown in this article compares the levels of IL-1β, IL-17, IL-6 and MDA in the peripheral blood from HIV-1 positive individuals to the levels in healthy subjects [4,5]. The findings may help understand the consequence of CD4 T cell decline in the pathophysiology of the disease process.
- Redox imbalance and exacerbated inflammation in HIV-1 positive individuals contribute to increased susceptibility for opportunistic infections [1–3]. These data could help researchers develop novel immunotherapeutics to modulate the host immune responses.

1. Data

Our data indicates a correlation between diminished CD4 T cell counts and increased levels of pro-inflammatory cytokines (IL-1β, IL-17, and IL-6) that contribute to systemic inflammation and cell signaling [1,2]. Our methodology for the measurement of these cytokines is colorimetric ELISA detection kits as previously reported [1–3]. The data that we presented here contribute to the understanding of the pathophysiology of the disease process in individuals with HIV-1 infection (Figs. 1 and 2).

2. Experimental design, materials and methods

2.1. Study subjects and blood specimens collection

The Institutional Review Board of Western University of Health Sciences approved the research protocol. Blood specimens were obtained from HIV-1 positive participants recruited at the Riverside County Regional Medical Center, Moreno Valley, CA. Study subjects were under 65 years of ago with no preference for gender and ethnicity. Isolation of Plasma from Whole Blood.

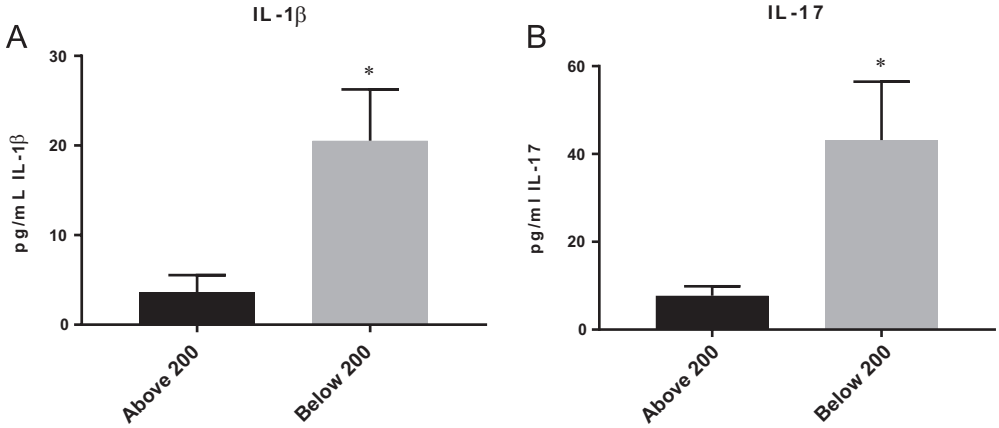

Fig. 1. Levels of IL-1β and IL-17 in plasma from HIV-1 individuals with CD4 T cell counts $>200\ mm^3$ and CD4 T cell $<200\ mm^3$. Average values in normal healthy individuals range between 2.04 ± 4.93 pg/mL [4]. Here we present values that show levels of IL-1β to be significantly higher in HIV-1 individuals with CD4 T cell $<200\ mm^3$ compared to CD4 T cell $>200\ mm^3$ (A). Data for IL-17 showed HIV-1 subjects with CD4 T cell $<200\ mm^3$ had significantly higher levels than subjects with CD4 T cell $>200\ mm^3$ (B). The average values found in peripheral blood of normal healthy individuals for IL-17 range between 6.53 ± 7.42 pg/mL [4]. *P*-value $^{*}p<0.05$.

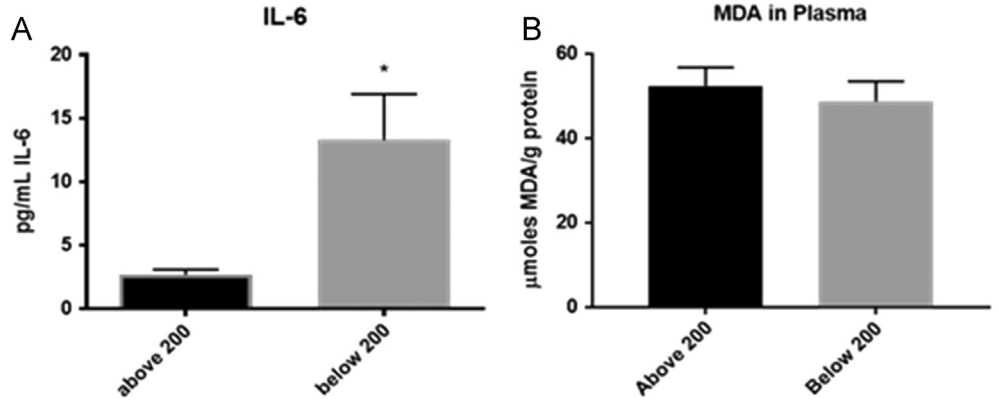

Fig. 2. Levels of IL-6 and MDA in plasma samples from HIV-1 individuals with CD4 T cell $>200\ mm^3$ and CD4 T cell $<200\ mm^3$. HIV-1 subjects with CD4 T cell $<200\ mm^3$ had significantly higher levels of IL-6 than subjects with CD4 T cell $>200\ mm^3$ (A). Average values of IL-6 in healthy individuals range between 2.91 ± 6.45 pg/mL [4]. Although it was not significant, levels of MDA were similar between HIV-1 subjects with CD4 T cell $>200\ mm^3$ and with CD4 T cell $<200\ mm^3$ (B). Levels of MDA from healthy subjects are significantly lower than HIV infected individuals [1,2,5]. *P*-value, $^{*}p<0.05$.

Whole blood was collected from each subject and processed according to the method reported by our lab [1,2]. Plasma samples were obtained from whole blood by performing density gradient centrifugation using Ficoll-Paque PLUS (10040757; GE Health care).

2.2. Malondialdehyde (MDA) measurement for oxidative stress

MDA is a byproduct of lipid peroxidation and is used to determine the levels of oxidative stress in the cells. A colorimetric is observed at 530–540 nm when MDA forms an adduct with thiobarbituric acid. Detailed protocol was previously reported [1–3].

2.3. Statistical analysis

Statistical data were analyzed using Graph Pad Prism Software. All data were reported in means *P*-values ($p < 0.05$), using unpaired *t*-test with Welch's correction.

Acknowledgments

We thank Potts Memorial Foundation, Your Energy Systems, American Heart Association-Scientist Development Grant and Western University of Health Sciences for their research fund.

Transparency document. Supporting information

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2016.07.023.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at http://dx.doi.org/10.1016/j.dib.2016.07.023.

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