PLASMA AND CSF SCD30 DYNAMICS BEFORE AND AFTER ART INITIATED IN ACUTE HIV

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BACKGROUND

- CD30 is a member of the TNF receptor family that is rarely expressed in healthy individuals. Soluble CD30 (sCD30) is a potential marker of persistent immune activation and/or viral persistence in people living with HIV (PLWH).
- In chronic HIV infection (CHI), CD30 co-localizes with HIV RNA and DNA in CD4+ T cells from blood and gut tissue. Depletion of cells expressing CD30 reduces the total amount of HIV DNA detected in lymphocytes.
- Evaluation of sCD30 in cerebrospinal fluid (CSF) compared to blood before and after antiretroviral therapy (ART) in acute HIV (AHI) may be valuable in understanding HIV neuropathogenesis.

METHODS

- We measured sCD30 in the plasma and CSF of PLWH in the Thai RV254 AHI cohort at baseline (off ART), 48 weeks on ART, and 96 weeks on ART.
- We also measured sCD30 in the plasma and CSF of PLWH in the Thai RV304 CHI cohort at baseline (off ART), 24 weeks on ART, and 96 weeks on ART.
- We examined correlations with HIV parameters and inflammatory markers. We used non-parametric tests to compare sCD30 levels between groups and to assess relationships between covariates.

Characteristic	Acute HIV Infection (n=162)	Chronic HIV Infection (n=49)
Age (years)	26 (23-31)	28 (26-34)
Male (n, %)	158 (97.5)	47 (95.9)
Duration of infection (days)	19 (15-23)	151 (21-361)
Fiebig stage	69 (23.6) Fiebig I-II 93 (76.4) Fiebig III-VI	n/a
Plasma HIV RNA (log_{10} copies/mL)	5.8 (5.2-6.7)	4.3 (3.4-4.8)
CD4+ T cell count (cells/uL)	367.5 (265-504)	399.3 (330-538)
CSF HIV RNA (log_{10} copies/mL)	3.4 (2.7-4.4)	3.3 (2.5-4.2)

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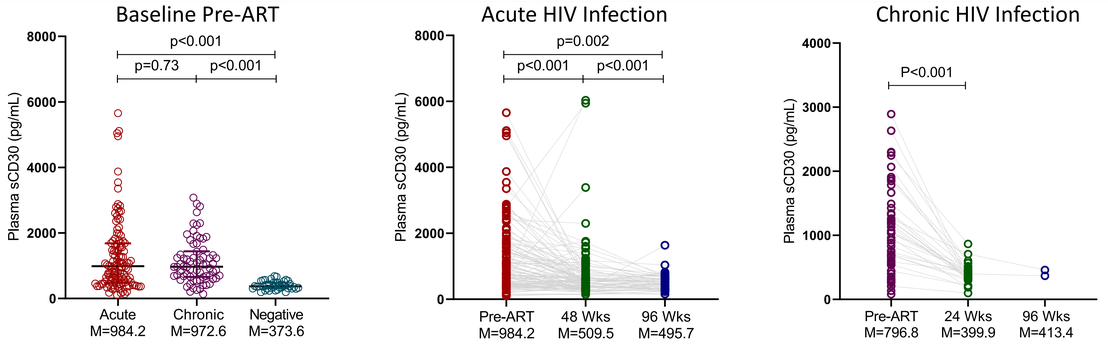
In untreated AHI, sCD30 is elevated in plasma but not cerebrospinal fluid.

In treated AHI and CHI, both plasma and CSF sCD30 decline over the first 1-2 years on ART.

Plasma and CSF sCD30 levels correlate with markers of inflammation in both compartments.

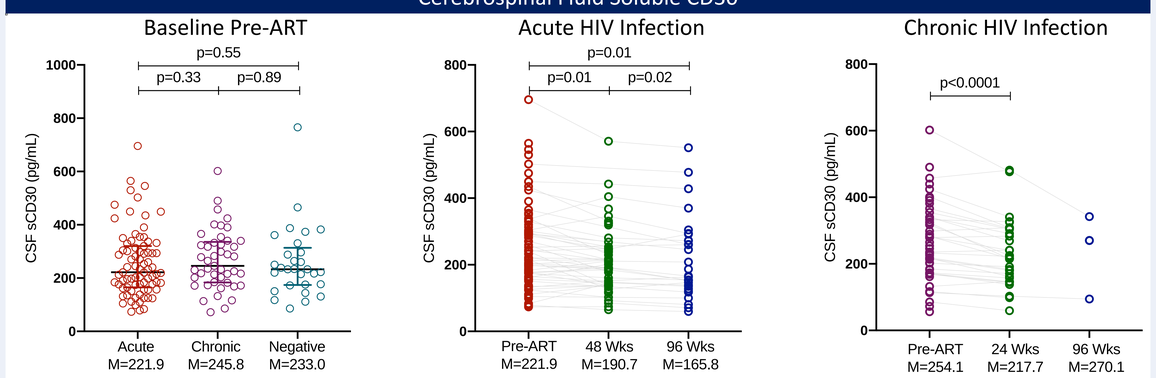
RESULTS

Plasma Soluble CD30



Plasma sCD30 is elevated in AHI and CHI, and declines with ART in both groups.

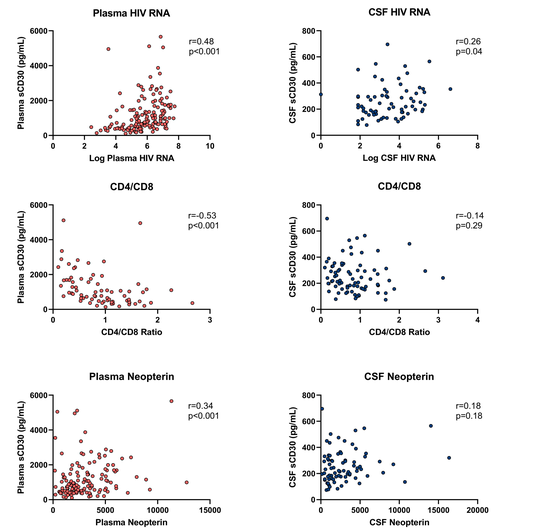
Cerebrospinal Fluid Soluble CD30

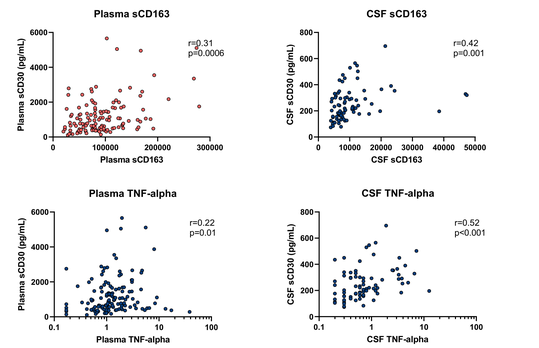


CSF sCD30 is not elevated in AHI or CHI, but levels still decline with ART in both groups.

RESULTS, CONTINUED

Correlates of sCD30 in Acute HIV Infection





CONCLUSIONS

- Prior work has shown elevations in CSF sCD30 during treated CHI. The different pattern in this cohort could be due to a shorter duration of treatment in this study.
- ART during AHI may prevent elevations in CSF sCD30 seen in other later-treated cohorts.

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