Variation of CD4 count in Pregnant Women Living with HIV

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Introduction

- The CD4⁺ T lymphocyte count gives crucial information on the status of a patient's immune system and can be affected by several factors, including pregnancy
- HIV seronegative pregnant women have been found to have a significantly lower absolute CD4⁺ cell count throughout pregnancy in comparison to HIV seronegative non-pregnant women[1]
- In HIV seropositive pregnant women, a steady decline of CD4 percentages has been observed during pregnancy and in post-partum[3,]
- **Drastic variations in recommendations for CD4 monitoring among pregnant women living with HIV between countries**

Objectives

- To identify the frequency of CD4 counts dropping below 200/mm^3 during pregnancy in women living with HIV and its risk factors.

Methodology: Cohort study

- **Inclusion criteria**:
  - a gestational age at delivery >= 20 weeks
  - at least 2 CD4 counts during gestation
- **Exclusion criteria**: Missing CD4 data, HIV diagnosis at delivery or in the post-partum period
- **Population**: We used **2005-2019** data from 2 existing cohorts
  - The BC Perinatal HIV Database, which retrospectively collects data on all HIV infected pregnant women in British Columbia since 1994
  - The "Centre Maternel et Infantile sur le SIDA" cohort which prospectively enrolls HIV-infected pregnant women at the CHU Sainte-Justine (Quebec) since 1987.
- Data analysis
  - Univariate analysis
  - Logistic regression

References

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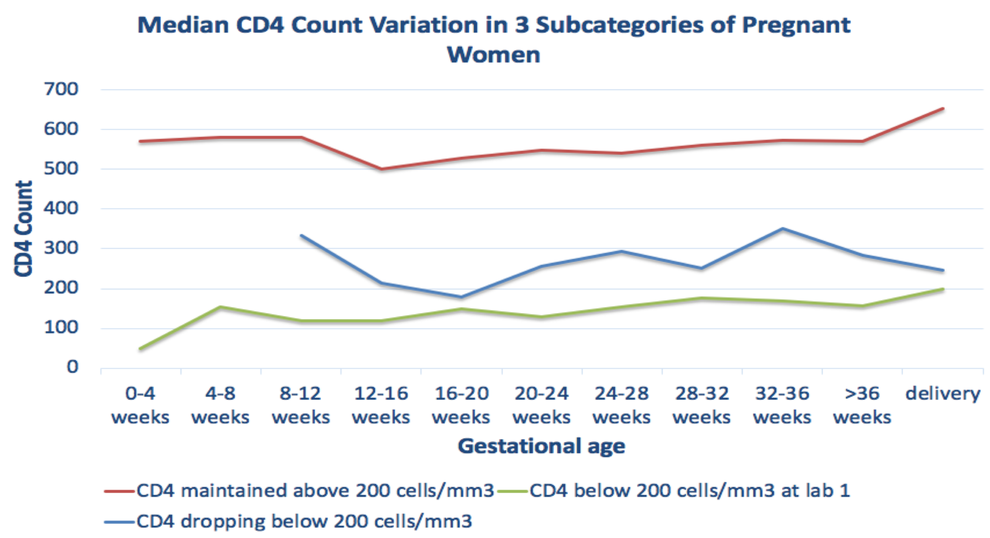
Conflict of Interest Disclosure: I have no conflicts of interest

Results

Table 1: Key Differences Between Pregnant Women with a CD4 Count above 200 cells/mm^3 or dropping below 200 cells/mm^3 during pregnancy

	CD4 count maintained above 200/mm3 during pregnancy n=533 (86.9 %)	CD4<200/mm^3 at first pregnancy visit n=17,(2.8 %)	CD4 dropping below 200/mm^3 during pregnancy n=63 (10.3 %)
Month of ART introduction during pregnancy (median [IQR] p=0.02)	8.8 [5.0-22.0]	5.3 [3.6-9.6]	5.3 [3.6-9.6]
HBV/HCV coinfection (p<0.01)	50 (9.4 %)	4 (23.5 %)	14 (22.2 %)
Substance use (p=0.33)	138 (26.1 %)	5 (28.4 %)	22 (34.9 %)
Age (median [IQR] in years) (p=0.63)	31.0 [27.0-36.0]	31.0 [26.5-34.5]	32.0 [26.0-36.0]

- There is a **significant difference** (p<0.01) between the median first CD4 count of women maintaining a CD4 above 200/mm^3 (546/mm^3, 95 % confidence interval: 391-720) and women with a CD4 count dropping below 200/mm^3 during pregnancy (270/mm^3, 95%CI: 218-338)
- With each **100 cells/mm^3 increase** at the first CD4 count, the risk of a woman's CD4 level dropping below 200 during pregnancy decreases by 0.28 [0.15-0.51] (p<0.01)
- Only one variable showed **significant association** with a CD4 drop below 200 cells/mm^3 during pregnancy
  - ART initiation prior to conception/during T1 vs during T2/ T3: OR=3.62 [1.24-10.59], p=0.02
- There was **no significant association** with
  - ART initiation prior to conception vs during pregnancy: OR=1.98 [0.63-6.23], p=0.24
  - ART initiation per trimester vs preconception (p=0.13)
    - T1: OR=0.44 [0.05-4.01]
    - T2: OR=2.98 [0.90-9.86]
    - T3: OR=2.56 [0.45-14.49]
  - Coinfection with HBV/HCV: OR=2.62 [0.83-8.31], p=0.10
  - Substance use: OR=1.00 [0.97-1.03], p=0.95
  - Age: OR=0.98 [0.90-1.07], p=0.71
  - Parity: OR=0.92 [0.32-2.66], p=0.88



Conclusions

- CD4 counts dropping below 200/mm^3 is uncommon in pregnancy, which means our target sample size was limited.
- We were only able to find significant association with early ART initiation (preconception or 1st trimester) versus late ART initiation (2nd or 3rd trimester). Other variables such as hepatitis B or C coinfection or substance use did not show significance in our study.
- Risk factors of CD4 drop need to be further identified with a bigger sample size to decrease the surveillance of CD4 counts in pregnant women living with HIV.

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