Distinct effect of sex hormone intake on immunity in cis and trans women with HIV

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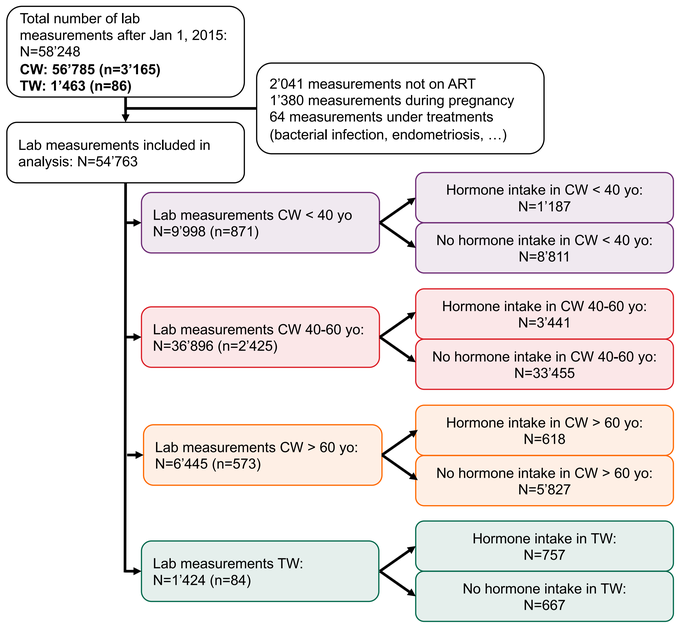
Background

- Sex and gender differences in immunity could be partly due to the immune-modulatory effect of sex hormones
- Concerns on drug-drug interactions between ART and sex hormones might limit hormone prescription in cis women (CW) and trans women (TW) living with HIV
- Therefore, little is known on the immune effect of exogenous sex hormone intake in women living with HIV
- We **compared key HIV biomarkers in CW and TW living with HIV, under sex hormone intake or not**

Methods

- Swiss HIV Cohort Study → biannual follow-up visits with laboratory measurements
- Laboratory measurements from CW and TW after January 1st, 2015 (start of comedications intake systematic reports) classified as ”under hormones” or not
- HIV markers are scaled and modeled with linear mixed effects adjusted on time on ART and other confounders
- We tested for an interaction term between the gender/age group and the variable “under hormones”

Samples included in the analysis

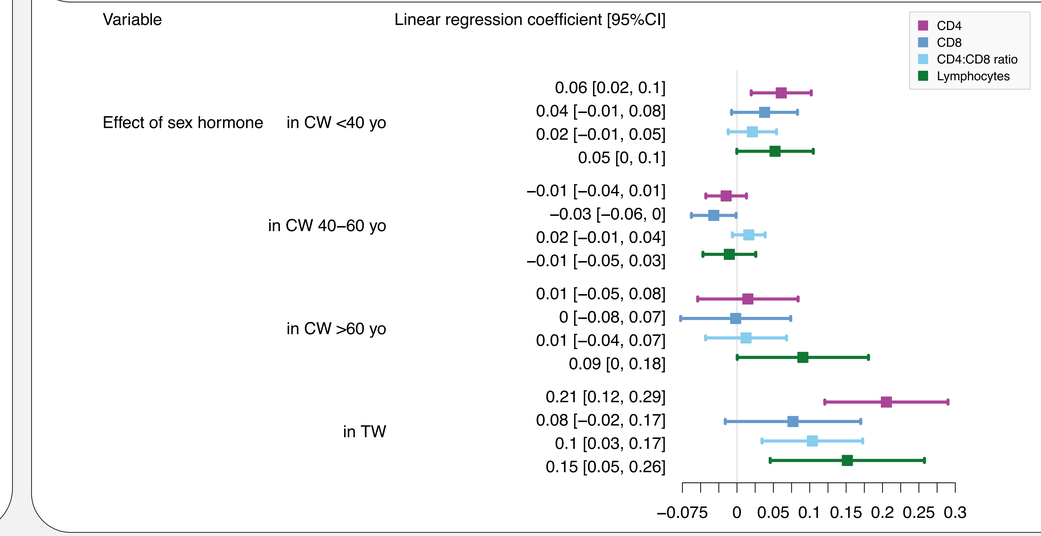


Large cohort data indicate that sex hormone intake is associated with larger increase in CD4, CD4:CD8 ratio and total lymphocytes in trans women versus cis women living with HIV.

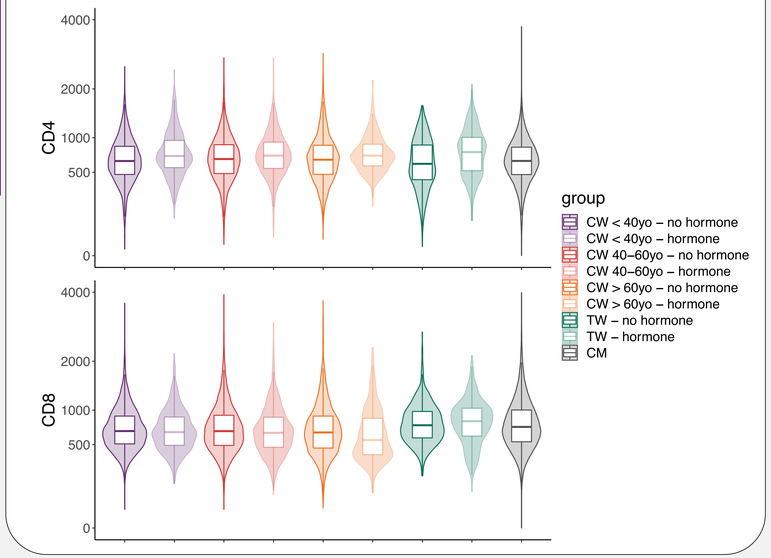
Diversity of sex hormone intake in women from the SHCS

		CW <40yo ($n_{reports}$=390)	CW 40-60yo ($n_{reports}$=620)	CW >60yo ($n_{reports}$=76)	TW ($n_{reports}$=158)	Total ($n_{reports}$=1244)
Oestrogens	Systemic	13 (3.3%)	109 (17.6%)	8 (10.5%)	**84 (53.2%)**	214 (17.2%)
	Local	8 (2.1%)	90 (14.5%)	**48 (63.2%)**	0	146 (11.7%)
	Systemic & local	0	2 (0.3%)	2 (2.6%)	0	4 (0.3%)
Progestogens	Systemic	**137 (35.1%)**	**131 (21.1%)**	2 (2.6%)	4 (2.5%)	274 (22.0%)
	Local	55 (14.1%)	28 (4.5%)	0	0	83 (6.7%)
	Systemic & local	3 (0.8%)	0	0	0	3 (0.2%)
Oestrogens + Progestogens	Systemic	**144 (36.9%)**	**238 (38.4%)**	**16 (21.1%)**	2 (1.3%)	400 (32.2%)
	Local	8 (2.1%)	3 (0.5%)	0	0	11 (0.9%)
	Systemic & local	3 (0.8%)	7 (1.1%)	0	0	10 (0.8%)
Antiandrogens	Systemic	0	1 (0.2%)	0	7 (4.4%)	8 (0.6%)
Oestrogens + Antiandrogens	Systemic	17 (4.4%)	9 (1.5%)	0	**52 (32.9%)**	78 (6.3%)
Oestrogens + Androgens	Systemic	0	2 (0.3%)	0	5 (3.2%)	7 (0.6%)
Oestrogens + Antiandrogens + Androgens	Systemic	0	0	0	3 (1.9%)	3 (0.2%)
Oestrogens + Progestogens + Antiandrogens	Systemic	2 (0.5%)	0	0	1 (0.6%)	3 (0.2%)

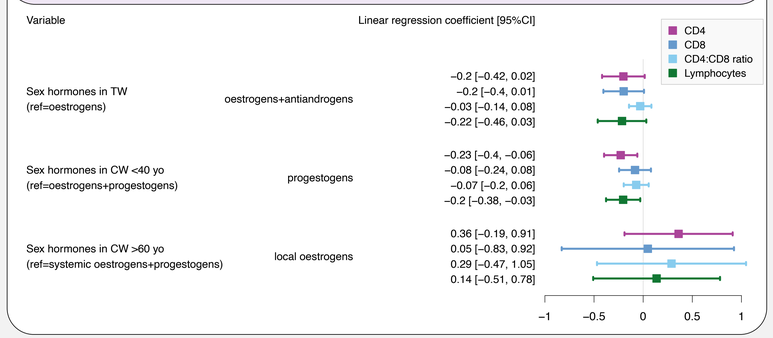
Sex hormone intake is associated with larger effect on immune markers in TW versus CW



Distribution of CD4 and CD8 counts in the different groups



Effect on immune markers varies depending on the type of sex hormone taken



Conclusion

- Sex hormone intake is associated with **distinct modulations of the immune system** in CW and TW
- This could be due to differences in dosing, combination of hormones taken, and/or mechanisms of actions of hormones on the immune system in CW and TW.

Acknowledgments

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