

富嶽三十六景 神奈川沖
浪裏

Covid19 vaccination in PLWH

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CHU Saint-Pierre, Brussels

BREACH, Nov 30th, 2021 (4th wave...)



Plan of the presentation

- Is Covid19 more severe in PLWH?
- What is available in literature about Covid19 vaccine in PLWH?
- And patients with low CD4 T cell count?
- SeroCoVIIH
- Conclusions

Is Covid19 more severe in PLWH? *to conclude*

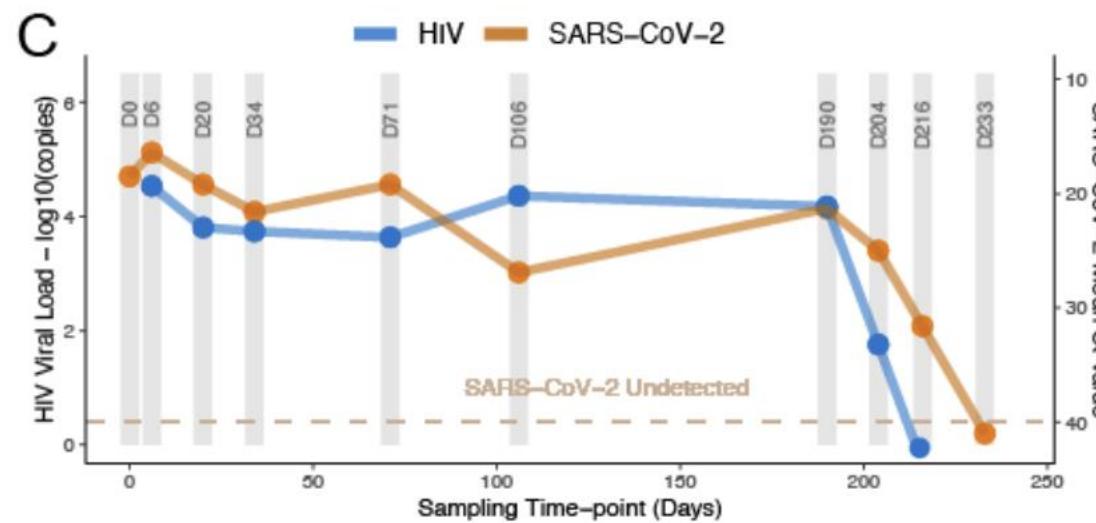
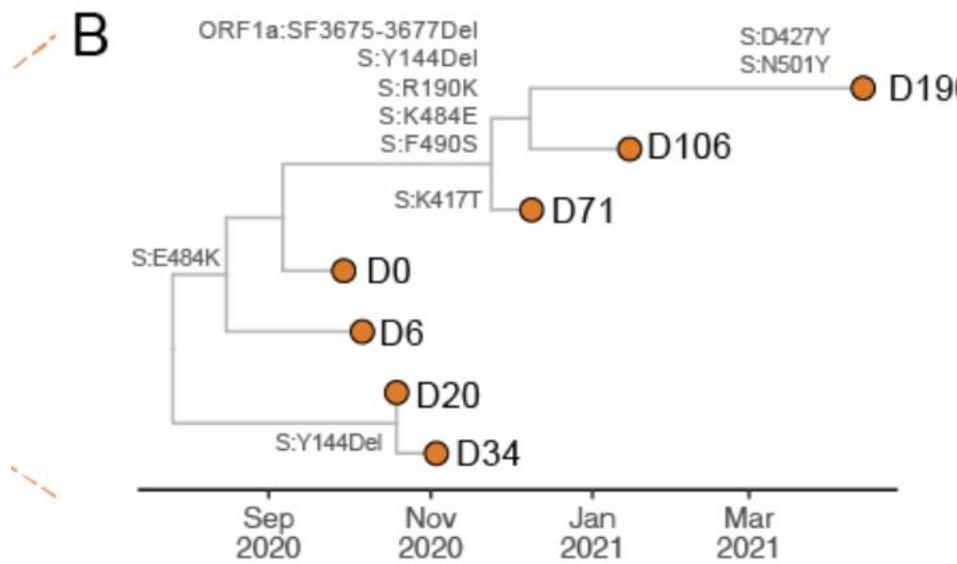
- Excess risk driven by HIV *per se* **versus** PLWH being disproportionately affected by other negative health determinants?
- There is some evidence that HIV-specific factors could impact risk of worse COVID-19 outcomes
- It highlights the health inequities that have been magnified by COVID-19

May 5, 2021

Researchers Tie Severe Immunosuppression to Chronic COVID-19 and Virus Variants

Jennifer Abbasi

JAMA. 2021;325(20):2033-2035. doi:10.1001/jama.2021.7212



It is not only about severity....

« people living with HIV, particularly those with immune suppression, should be prioritised for COVID-19 risk reduction, including vaccination »

What is available in literature about Covid19 vaccine pD2 in PLWH?

Authors	Type of study	Vaccine	n PLWH	Controls?	CD4/mm ³ (med)	Lab test	Results	FUp	Comments
Levy et al.	Prospective open	BNT162b2	143	yes	700, all on ART	RBD and neutra	98% RBD and 97% (vs 99 and 98%)	18 days pD2	96% Caucasians-signif younger-signif more comorb
Jedicke et al.	unclear	BNT162b2	52	yes	716, all on ART	antiS and neutra	12% low neutra pD2- Robust humoral response in all but lower anti-S in PLWH and higher variability	28 days	Not fully sex, age and comorb matched
Polack et al.	within phase 2	BNT162b2	196	yes	?	VE	?		Subanalysis non available
Frater et al.	within Cov002- single arm open label	ChAdOx1	55	yes	694, all on ART	VE	No difference in magnitude and/or persistence of humoral and specific cellular response	56 days	

Authors	Type of study	Vaccine	n PLWH	Controls?	CD4/mm ³ (med)	Lab test	Results	FUp	Comments
Brumme et al.	Preprint, unclear	ChAdOx1 and BNT162b 2	100	yes	710, all on ART	RBD and neutra	No difference btween cases and controls	28 days	Difference with age and comorb, ChAdOx vs mRNA
Baden et al.	phase 3 randomized, observer-blinded, placebo-controlled trial	mRNA-1273	92 (82pp)	yes	?	VE	?		Subanalysis non available
Voysey et al.	Within Phase 2/3	ChAdOx1	103	yes	?	VE	?		Subanalysis non available

Immunogenicity in PLWH?

- Data on less than 600 vaccinated PLWH in the literature, few VE data
- Overall of low quality
- Nothing on mRNA-1273 or on Ad26.COV2.S vaccine
- Women, PLWH of Black ethnicity?
- No Follow-Up on immunogenicity or safety
- Acceptance, questions and hesitancy among PLWH

Prevention and Treatment of SARS-CoV2 Infection in People Living with HIV: The Need for Specific Data

Natalia A. Díaz · Rosa de Miguel · Fernando Agüero · Omar Sued ·

José R. Arribas · Juan Ambrosioni  · the Hospital Clinic COVID-19 in HIV Investigators

And PLWH with low CD4 ($<350/\text{mm}^3$)?

Available literature (!)

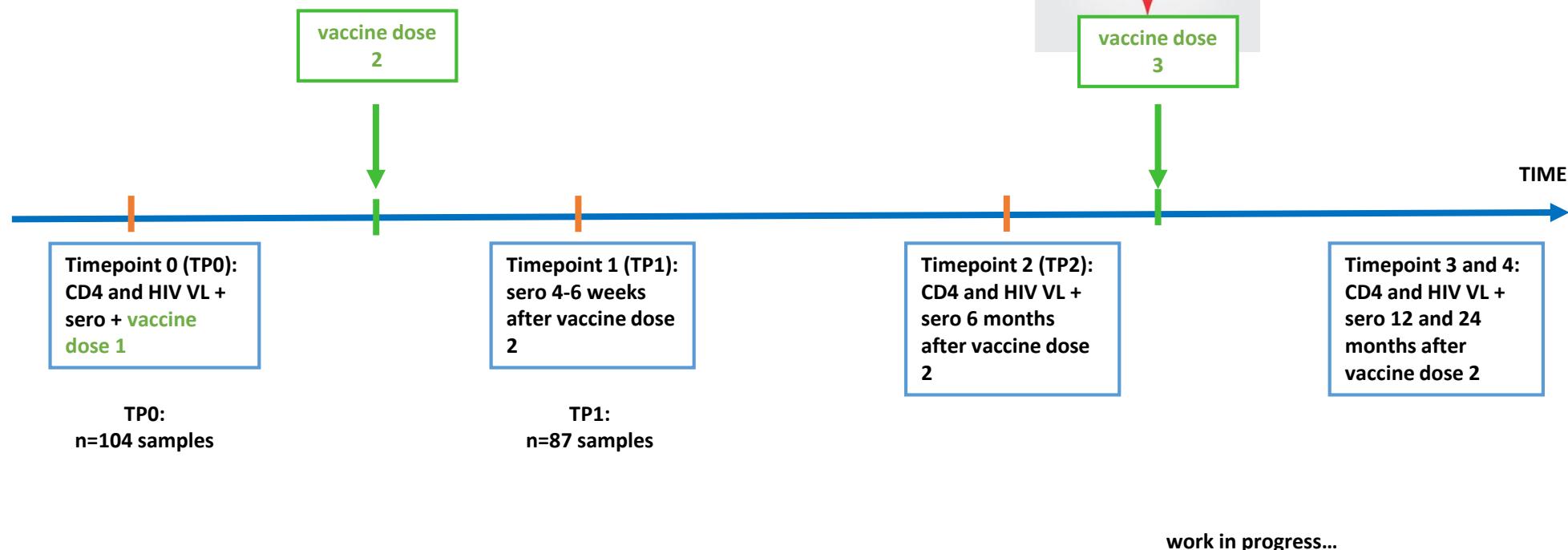
authors	journal	n	controls	CD4/mm3	n° doses and type of vaccine	results	comments
Nault et al.	preprint	6	Yes, HCW and higher CD4	<250	BNT162b2 1 dose	Lower antiRBD than in other CD4 strates and HCW	Only anti-RBD IgG-age effect
Touizer et al.	Lancet HIV	1	no	20 (and VL 800000)	BNT162b2 2 doses	No NAbs, IgG, cellular immunity	Case report
Antinori et al.	Abstract EACS OS4/3 2021	32	Yes, HCW and higher CD4	<200	BNT162b2 and mRNA1273	86,7% respond to vaccination- IgG levels in direct relation to CD4-Nabs 70%- cellular response: only pD2	



SeroCoVIH study- CHU Saint-Pierre

How do PLWH with CD4<350 respond to Covid19 vaccination?

Study Design and number of samples at each timepoint of the study



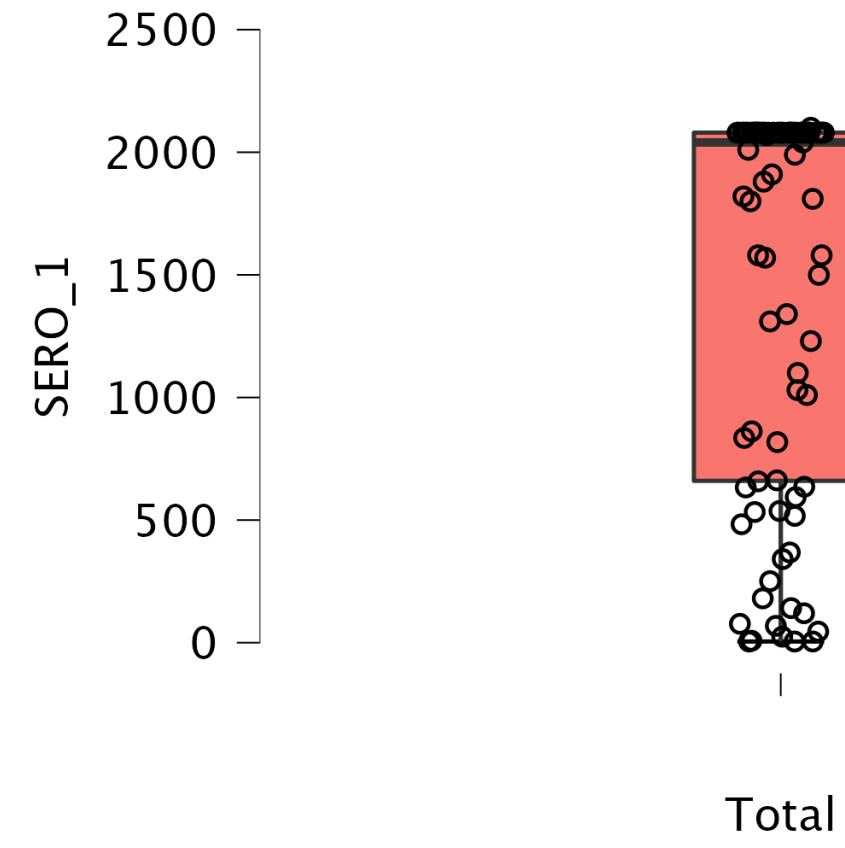
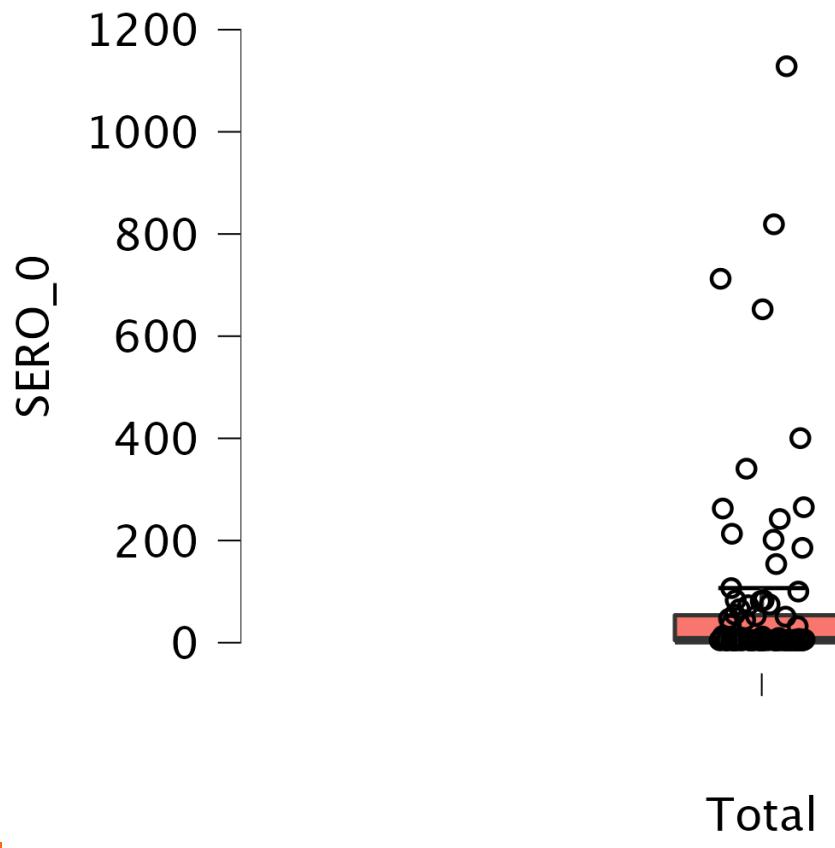
- N=87 patients with CD4<350/mm³ at time of immunization
- Vaccination with 2 doses of BNT162b2 vaccine, with minimum 3 weeks interval

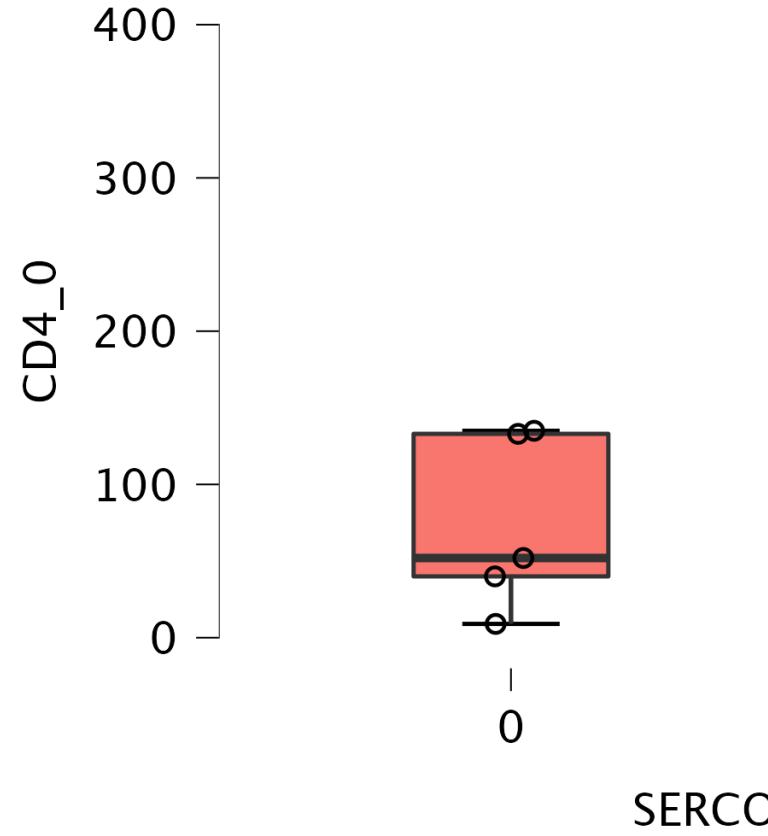
Demographics

	N (%)
TOTAL	87 (100%)
Mean age (min-max)	47 (23-77)
Sex (male)	55 (63%)
Ethicity	
- African	49 (56%)
- Caucasian	15 (17%)
- Latino	13 (15%)
- Maghreb	6 (7%)
- Asian	4 (5%)
Tobacco smoker	21 (24%)
Cardio-vascular	36 (41%)
- hypertension	- 25 (29%)
- cardiopathy	- 6 (7%)
- hypercholesterolemia	- 27 (31%)
- diabetes mellitus	- 9 (10%)
Pulmonary	10 (11%)
- Asthma	- 6 (7%)
- COPD	- 3 (3%)
- OSAS	- 1 (1%)
CKD (KDIGO staging)	41 (47%)
- Stage II	- 28 (32%)
- Stage III	- 12 (14%)
- Stage IV	- 1 (1%)
Liver	16 (18%)
- Active hep B	- 8 (9%)
- Active hep C	- 4 (5%)
- Cirrhosis/steatosis	- 4 (5%)
Obesity (BMI > 30)	23 (26%)
Other	7 (8%)
Neoplastic conditions	10 (11%)

HIV disease	AIDS defining events in the last (5 years)	22 (25%)
	Currently under ART	87 (100%)
	Mean CD4 cell/mm ³ (t0) (min-max)	237 (9-377)
	Mean CD4 % (t0) (min-max)	15.3% (0.8-43)
	HIV viral load t0 (cop/mL)	
COVID-19	< 200	75 (86%)
	201-1000	5 (6%)
	> 1000	7 (7%)
	Serological history of SARS-CoV-2	127 (31%)
	Serological response after 2 doses (BAU/mL)	82 (94%)
	> 2080	42 (48%)
	2080-1000	19 (22%)
	1000-500	11 (13%)
	500-100	7 (8%)
	33-100	3 (3%)

SARS-CoV-2 IgG anti-Spike (BAU/ml)





Descriptive Statistics

	CD4_0	
Valid	5	82
Missing	0	0
Median	52.000	246.000
Mean	73.800	246.988
Std. Deviation	57.155	75.318
Minimum	9.000	81.000
Maximum	135.000	377.000

Follow up of the patients

- PRNT: pending
- Currently= timepoint 6 months
 - > sero + CD4 + HIV VL
 - > then 3rd dose of BNT162b2 according to Belgian recommendations
 - > sero 4 weeks after 3rd dose

Conclusions about Covid19 vaccination in PLWH



- Overall, vaccines seem to generate a good immunogenicity (humoral and cellular) in well-controlled PLWH
 - Data on less than 600 vaccinated PLWH in the literature, few VE data
 - Overall of low quality
 - Nothing on mRNA-1273 or on Ad26.COV2.S vaccine
 - Women, PLWH of Black ethnicity?
 - No Follow-Up on immunogenicity or safety
 - Acceptance, questions and hesitancy among PLWH
 - **PLWH with detectable HIV VL, low CD4...the most fragile and the least represented!**

A large pile of colorful cards with question marks.

Thank you for your attention!