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SWITCHING ART REGIMENS IS ASSOCIATED WITH HIGHER WEIGHT GAIN IN PEOPLE LIVING WITH HIV

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Background

An increase in the prevalence of overweight and obesity have been detected within the last decades[1,2] in people living with HIV (PLWH)[3,4]. Weight gain in PLWH is complex and influenced by many parameters including antiretroviral therapy (ART) and ART-regimen changes over the time[5,6,7].

Methods

The ongoing HIV-HEART Aging study (HIVH) is a prospective cohort to assess cardiovascular risk in PLWH in Germany since 2004. Here, the cohort was analyzed retrospectively regarding weight change within the last 2.5 years. The participants were grouped based on ART regimen change vs. same ART regimen during the last 2.5 years.

Methods cont.

The groups were characterized regarding their relative (% change) and absolute (in kg) weight changes. Furthermore, the absolute weight change over 2.5 years, adjusted for age and sex, was analysed in linear regression models in both groups.

Results

916 participants from HIVH with a mean age of 51±10 years were included in the analysis (ART regimen change within 2.5 years: n=468 (male=375 female=73); same ART regimen within 2.5 years: n=448 (male=398 female=70)). Their general and HIV-specific characteristics, as well as the weight change within 2.5 years are shown in table 1.

Table 1: Characteristics of PLWH from the HIVH study comparing weight change and ART regimen switch over 2.5 years

		same ART-regimen within 2.5 years (n=448)			ART-regimen change within 2.5 years (n=468)		
		N	N(%)/ MEAN±SD at start	N(%)/ MEAN±SD after 2.5 years	N	N(%)/ MEAN±SD at start	N(%)/ MEAN±SD after 2.5 years
Weight	[kg]	448	79.15 ± 14.92	80.27 ± 15.74	468	80.48 ± 15.91	81.99 ± 16.66
BMI		448	25.47 ± 4.38	25.83 ± 4.76	468	25.86 ± 4.71	26.35 ± 4.95
HIV viral load not detectable	yes	448	435 (97.1 %)	439 (98.0 %)	466	450 (96.6 %)	451 (96.4 %)
ART class	NRTIs	444	411 (92.6 %)	411 (92.6 %)	461	433 (93.9 %)	429 (93.3 %)
	NNRTIs	444	192 (43.2 %)	192 (43.2 %)	461	166 (36.0 %)	114 (24.8 %)
	INSTIs	444	190 (42.8 %)	190 (42.8 %)	461	143 (31.0 %)	290 (63.0 %)
	PI	444	96 (21.6 %)	96 (21.6 %)	461	194 (42.1 %)	105 (22.8 %)
Single Tablet Regime	yes	444	211 (47.5 %)	211 (47.5 %)	461	107 (23.2 %)	271 (58.9 %)
Standardized weight change within 2.5 years	[%]	448	5.96 ± 12.25		468	7.37 ± 12.09	
	[kg]	448	4.28 ± 9.39		468	5.52 ± 9.17	

Results cont.

Despite comparable mean weight (~80 kg) and body mass index (BMI) (~26) at the start of the observation time, the regression models showed an absolute weight change that was 1.35 kg (95% CL 0.17-2.53) higher in individuals with a change in their ART regimen within 2.5 years compared to participants with the same ART regimen during the period. Most switches in the ART regimen end up in an integrase strand transfer inhibitor (INSTI) containing regimen (63%) and in a simplification to a single tablet regimen (STR) (59%). At the end of the observation period the proportion of protease inhibitor (PI) containing regimens were similar in both groups, while non-nucleoside reverse transcriptase inhibitor (NNRTI) containing regimen are much more frequent in the continuous ART-regimen group.

Table 2: Weight change in % during 2,5 years Follow-up categorized

	weight loss			no weight change	weight gain		
	≥ -20%	≥ -10%	≥ -3 %	> -3 % to < 3%	≥ 3 %	≥ 10%	≥ 20%
No ART- change* (n=445, missings: 3)	N=8 (1.8%)	N=17 (3.8%)	N=76 (17.1%)	N=114 (25.6%)	N=255 (57.3%)	N=135 (30.3%)	N=37 (8.3%)
ART- switch** (n=467, missings: 1)	N=4 (0.9%)	N=13 (2.8%)	N=63 (13.5%)	N=128 (27.4%)	N=276 (59.1%)	N=158 (33.8%)	N=54 (11.6%)

Figure 1: Weight change (standardized) in % during 2,5 years Follow-up

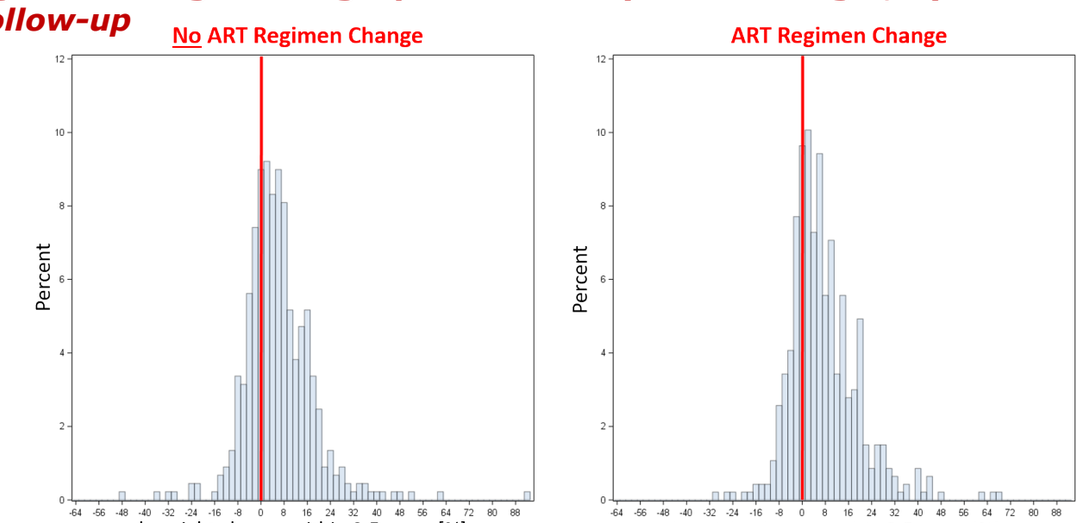

Figure 2: Boxplot: Comparison weight change (standardized) within 2,5 years regarding ART change: yes vs. no

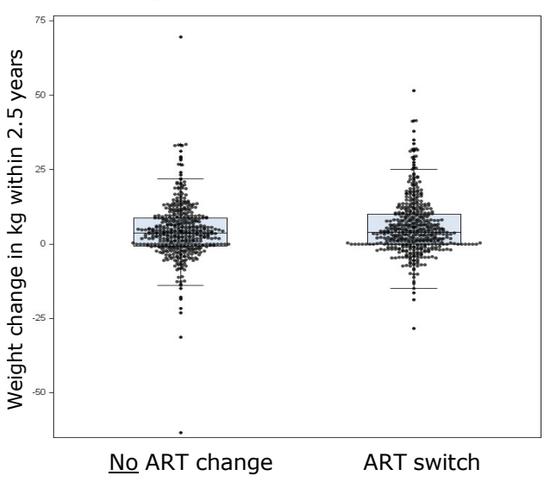

Table 3: Linear Regression Model of PLWH from the HIVH study showing the association of ART regime change and absolute weight change within 2.5 years adjusted for age and sex

Abs. weight change over 2.5 years adj. for age/sex				
	estimate	p-value	95% confidence limits	
ART regimen change (yes vs. no)	1.35	0.0247	0.17	2.53

Conclusion

We showed that recent changes to contemporary ART regimens in HIVH during the last 2.5 years were associated with higher weight gains compared to continuous intake of the same ART regimen during the observed period. This difference may be explained by the more frequent use of INSTIs in the switch group. However, the mean weight gain over the time was quite low and individuals with extreme weight changes were rarely observed.

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