

The impact of sexual behaviour and cardiovascular risk factors on gut microbial dysbiosis HIV related

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Background. HIV-related dysbiosis may fuel the pro-inflammatory/activated immune milieu which is linked to a high cardiovascular risk in this population. Differences in faecal microbial composition exist according to sexual behavior. We hypothesized that alterations of the intestinal microbiota may correlate with a different degree of cardiovascular risk in HIV-infected (+) MSM and MSW.

Methods. 44 male, HIV+ subjects on suppressive cART were stratified according to Framingham Score (FS) using a cutoff of 10 (<10: low [L] FS; >10 Intermediate/High [I/H]) and sexual behavior (MSM and MSW). Subjects underwent: i) standardized diet questionnaires; ii) lipidic profile; (iii) faecal microbiota composition (MiSeq Illumina).

Results. Subjects were comparable for demographics and HIV-related parameters (Fig1). Food consumption was also similar among study subgroups. We confirmed a diverse gut microbiota composition in HIV+ MSM compared to MSW (Unweighted-Unifrac: p=0.02; Weighted-Unifrac: p=0.02; Bray-Curtis: p=0.003; Jaccard p=0.002), yet failed to detect any differences according to FS (Fig2A). When analyzing faecal microbial composition according to both sexual behavior and FS, all differences we detected were linked to the former (Fig2B). When studying the gut microbiota according to sexual behavior, FS and third-drug regimen, a diverse microbial separation was found in MSM with I/H versus L FS treated with INI-containing regimens (Jaccard, p= .02; Fig2C)

Conclusions. We confirm differences in the fecal microbial composition according to sexual behavior. Despite failing to detect a link between microbiota and Framingham score in HIV+ MSM and MSW, our data suggest that cardiovascular risk may be modulated by the combined effect of microbes and drug exposure.

