ORAL BACTERIOTHERAPY IN HIV INFECTION: EFFECT ON GUT INFLAMMATION AND ON FAECAL INFECTIVITY OF ANTIRETROVIRALLY TREATED SUBJECTS

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Background The gastrointestinal tract is a major site of HIV localization, despite antiretroviral therapy leads to suppression of HIV replication the gastrointestinal pathology is still persistent. In these patients increased levels of inflammation and decreased levels of mucosal repair and regeneration are observed. Consequently novel therapeutic interventions that restore the immunological and epithelial integrity of the mucosal barrier are needed.

Materials/methods Ten subjects receiving ART were treated for 6 months with multistrain probiotic formulation containing *L. plantarum* DSM24730, *S. thermophilus* DSM24731, *B. breve* DSM24732, *L. paracasei* DSM24733, *L. delbrueckii subsp. bulgaricus* DSM24734, *L. acidophilus* DSM 24735, *B. longum* DSM24736, *B. infantis* DSM24737 (Vivomixx in EU, Visbiome in USA). At baseline and 6 months after probiotics treatment, IELs density and enterocytes death via apoptosis as well as mitochondrial morphology were analyzed by immunoistichemical. Faecal water samples (FWS) were collected at T0 and T6 and checked for antiviral activity. C8166 cells were infected with HIV-1-P1 at multiplicities of infection of 0.05 TCID50/ml. After 1 hour at 37°C, cells were cultured with FWS (T0 and T6) for 24h and 48h. HIV-RNA from cell culture supernatant was quantified by versant kPCR (Siemens)

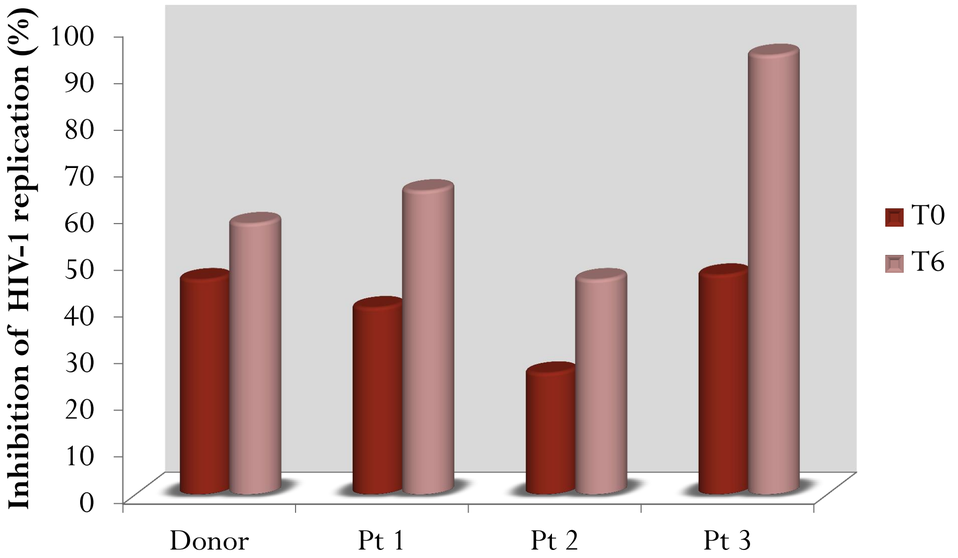

Fig. 1

Results We observed the recovery of the integrity of the gut epithelial barrier by reducing IELs density and enterocytes death via apoptosis as well as mitochondrial morphology. This was associated to an improvement of quality of life. The antiviral activity of FWS from patients treated with probiotics for 6 months (T6 FWS) resulted higher than T0 (65%±18 vs 37%±10) further confirmed by the results at 48h where percentage of inhibition of 97% (±3.5) was recorded *(Fig. 1)*.

CONCLUSIONS Our results confirm the gut flora plays a role in the interactions host-HIV also in terms of resistance to the HIV infection and the benefits of this specific probiotic preparation for the amelioration of the intestinal inflammation of antiretroviral treated patients. However, not all probiotic formulations are equally suited for HIV patients as previously reported therefore our data should not be extrapolated to other untested probiotic products

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