



Impact of rectal Gonorrhoea and Chlamydia on HIV viral load in the rectum; potential significance for onward transmission

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Background



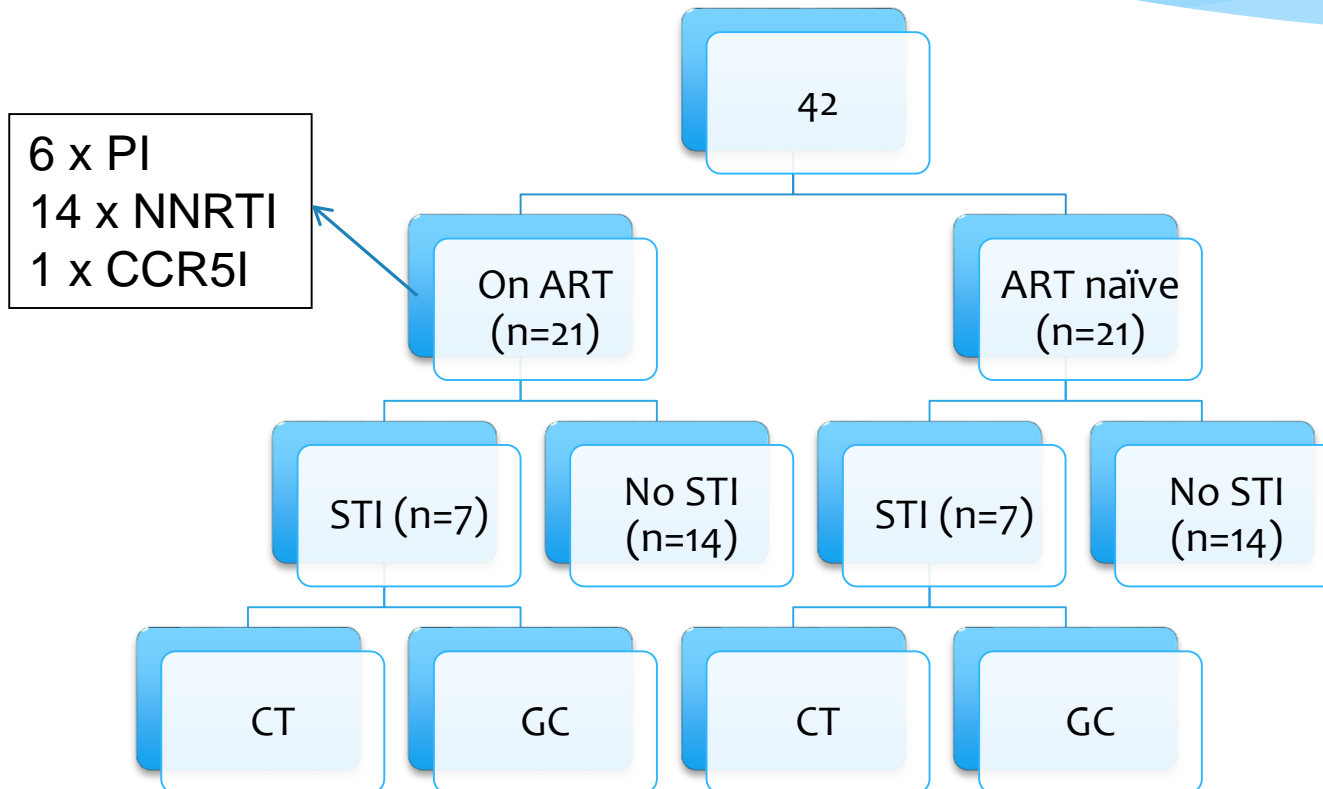
- * Anal sex is a major mode of transmission
- * High rates of asymptomatic rectal CT & GC (Soni STD 2011)
- * ART reduces HIV onward transmission risk
 - * 052: Heterosexual couples (Cohen NEJM 2011)
 - * PARTNER: MSM including STI effect (Rodger CROI 2014)
- * Limited data on influence of ART and bacterial STI on rectal HIV VL

Aims

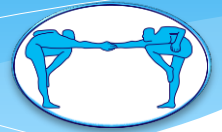


- To investigate the effect of ART on rectal HIV viral load
- To investigate the effect of asymptomatic rectal bacterial STI on rectal HIV VL and rectal inflammatory cytokines in individuals both on and off ART
- To investigate the effect of treatment of rectal STI on rectal HIV VL and inflammatory cytokines

Methods



Methods



- Clinical samples
 - Rectal samples:
Rectal swabs taken via proctoscopy: HIV VL, STI, cytokines
 - Plasma HIV viral load
- Those with a rectal STI were re-sampled ≈ 2 weeks after receiving STI treatment
- 4 rectal samples inhibited the PCR and were excluded from analysis

Laboratory analysis



- * Rectal HIV VL was quantified using the Roche Cobas TaqMan 48 analyzer and HIV-1 High Pure Extraction System and expressed as copies/ μ g total RNA
- * Plasma HIV VL was measured using the Roche AmpliPrep/Cobas Taqman system
- * Quantitative detection of inflammatory cytokines using cytokine array
 - * **IL6, IFN γ , TNF**

Results 1: Effect of ART on rectal HIV VL & cytokines



- * Rectal VL was < 100 copies/ μg in everyone **on ART** regardless of STI status
- * Rectal VL was median $2 \log_{10}$ lower than plasma VL in **ART naïve** group
- * **No difference in rectal inflammatory cytokines** between those on ART and those not on ART

Cytokine	<i>p</i> value
IL6	0.22
IFN γ	0.09
TNF α	0.63

Results 2: Effect of STI on rectal HIV VL and cytokine levels



* ART group

* STI did not increase:

* rectal HIV VL (All <100 copies/ μ g)

* IL-6 (p=0.41), IFN γ (p=0.42), TNF α (p=0.26) expression

* ART naïve group

* STI did not increase:

* rectal HIV VL (p=0.5)

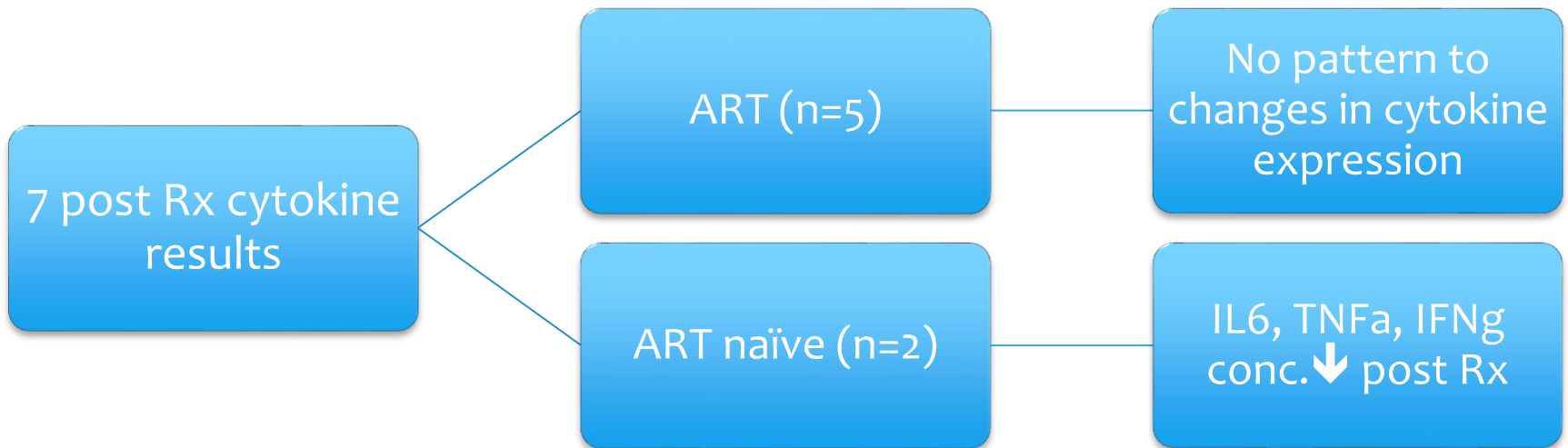
* IL-6 (p=0.12), IFN γ (p=0.16), TNF α (p=0.09) expression

Results 3: Effect of treatment of STI on rectal HIV VL



- * In ART group: all rectal VL were <100 copies/ μg pre treatment and remained so post treatment
- * In ART naïve group: Only 3/7 returned for post Rx tests. Rectal VL fell by $1 \log_{10}$ post treatment in all 3

Results 3: Effect of treatment of STI on cytokines

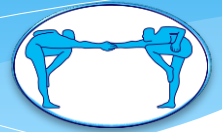


Conclusions



- * ART was associated with an undetectable HIV VL in rectum irrespective of ART regime
- * Rectal HIV VL and cytokine levels were not significantly higher in patients with rectal CT/GC and rectal VL did not increase at all in those on ART
- * This suggests minimal impact of CT/GC on onward transmission of HIV

Acknowledgements



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