Third Joint Conference
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Decrease in both IP-10 and 25(OH)D levels upon initiation of successful antiretroviral (cART) therapy in HIV/HCV co-infection

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HIV /Hepatitis C (HCV) co-infection is associated with poor clinical outcomes

- Lower response rates to treatment with pegylated-interferon
- Increased frequency and speed of progression to cirrhosis
- Increased liver related mortality

IP-10 and 25(OH)D are both predictors of treatment response and fibrosis progression in HCV

**IP-10**
- Interferon inducible protein 10 (IP-10) is a chemokine secreted in response to interferon γ.
- Both HCV mono infected and HIV mono infected patients have elevated IP-10 levels, but the highest levels are seen in HIV/HCV co-infection.
- No study has assessed the impact of cART on IP-10 level in HIV/HCV.

**25(OH)D**
- Vitamin D is a modulator of the T-cell immune response.
- Vitamin D3 supplementation has been shown to increase SVR rates.

In vitro data suggest that Vitamin D and metabolites can suppress IP-10 production

Aims

• To investigate the impact of successful cART on IP-10 levels in patients with HIV/HCV
• To compare IP-10 levels in HIV/HCV patients with those HIV positive individuals who have spontaneously cleared HCV.
• To investigate whether there is a correlation between IP-10 and 25(OH)D

Methods

• Pilot study
• Patients were identified from the cohort of HIV/HCV patients attending King’s College Hospital.
• The retrospective store of frozen plasma samples at the Institute of Liver Studies was searched to find samples from HIV/HCV patients before initiating cART and after initiating cART
• Normally distributed variables were compared with the students T-test. Non parametric variables were compared with Mann-Witney U.
All samples were prior to any interferon treatment. IP-10 was measured using the Quantikine ELISA IP-10 Immunoassay.
Median IP-10 was significantly lower in HIV/HCV patients on cART

![Box plot showing significant difference in IP-10 levels]

- **HIV/HCV No cART**
- **HIV/HCV on cART with HIV VL <40**

**P<0.001**
In this group CD4 count was not significantly different between groups.
Lowest Median IP-10 levels were seen in patients who had spontaneously cleared HCV.
Prospectively Median IP-10 decreased in HIV/HCV patients after initiating cART

CD4 cells/ml

Pre-cART: 319
Post-cART: 434

P = 0.03

P = ns
Mean 25(OH)D was significantly lower in HIV/HCV patients on cART
Data analysis

• In univariate analysis, only cART status was associated with IP-10. HCV genotype, HCV RNA, CD4, age was not.
• 25(OH)D remained lower in those on cART after controlling for ethnicity and season.
• There was no correlation between IP-10 and 25(OH)D even when patients stratified by cART status.
Discussion

• In a cross sectional comparison, IP-10 was lower in those on cART.

• Prospectively, IP-10 levels fell significantly in patients achieving undetectable viraemia with cART.

• There was no significant difference in CD4 indicating that this was not a profoundly immunosuppressed group.

• The lowest IP-10 levels were seen in the group who spontaneously cleared HCV. Is this a reflection of removal of HCV RNA or a function of the individuals immune response which permitted HCV clearance?
• 25(OH)D levels were lower in those on cART.
• This is supported by published data in HIV monoinfected patients.
• We did not detect any correlation between IP-10 and 25(OH)D.
Take-home messages

• IP-10 is known to be associated with increased liver fibrosis progression and poorer response to pegIFN

• We found that in patients with HIV/HCV, IP-10 was lower in those on cART despite no significant difference in CD4.

• This is further evidence to support the early initiation of cART in those with HIV/HCV, regardless of CD4, whether HCV treatment is planned or not.
Thank you for your attention
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