Abstract PMO-149 Table 1

Patient	Age (years)	Ethnicity	Mean ALT (U/L) (pre treatment)	Viral load (IU/ml), pre treatment	3-month Treatment with Tenofovir—stopped at delivery	Mean ALT (U/L) (post treatment)	Viral load—after 3 months
1	29	Chinese	20	2.15×10^8	Stopped 6 days before	20	4 log drop
2	24	African	16	4.6×10^7	Yes	70	2 log drop
3	40	Afghani	24	1.4×10^7	Yes	88	None recorded
4	34	Asian	35	$>1.7\times10^8$	Continued after birth	55	6 log drop
5	22	Chinese	23	9.2×10^7	Yes	98	None recorded

one stopped 6 days before birth. 1 mother continued after delivery due to increased ALT during treatment with ultrasound evidence of liver disease. There were no reported adverse effects. During or at the end of treatment four patients had rises in ALT (>1—2ULN) but no jaundice or hepatic decompensation. All the babies were born healthy and received immunoglobulin and vaccination.

Conclusion This small series demonstrates the safety of tenofovir in the last trimester of pregnancy. Small increases in ALT were seen which could be due to pregnancy, the initiation or discontinuation of tenofovir. It is necessary to assess the stage of liver disease to guide the treatment strategy after birth, although this is not always feasible in pregnancy. The timing of tenofovir discontinuation is determined by breastfeeding. We recommended that breastfeeding should start 24 h after treatment cessation, although there is not an evidence base to support this. Long-term prospective studies are indicated to confirm efficacy, safety and to determine optimal discontinuation strategies in relation to breastfeeding.

Competing interests None declared.

PMO-150 SECOND HARMONIC GENERATION MICROSCOPY OF COLLAGEN AND EVALUATION OF LIVER FIBROSIS IN CHRONIC HEPATITIS C (CHC) INFECTION

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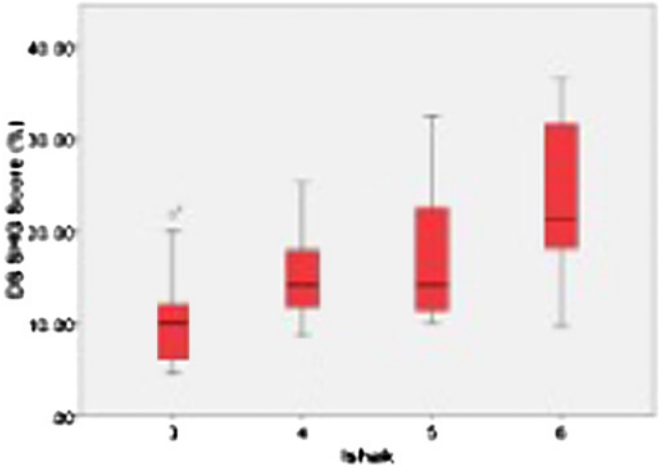
Introduction There is an urgent need to create tools to quantify collagen in liver fibrosis to facilitate stratification of disease and development of anti-fibrotic agents. Multiphoton microscopy enables imaging of unstained biopsies using endogenous sources of non-linear signals such as Two-Photon Excitation Fluorescence (TPEF) and Second Harmonic Generation (SHG). SHG allows specific detection of non-centrosymmetric structures such as fibrillar collagen, mainly type I. The SHG score is a measure of relative collagen area and is obtained by post-acquisition SHG/TPEF image processing. We have assessed the ability of our method to quantify collagen in advanced fibrosis due to CHC, with respect to Ishak stage (IS).

Methods Biopsies from patients with advanced fibrosis (IS ≥3) were selected from 1 centre in the Trent Study of Patients with Hepatitis C Virus, a prospective cohort study formed in 1991. Index biopsies prior to 2008 were selected and notes reviewed for subsequent liver related outcomes (LRO). LRO was defined as variceal bleed, ascites, encephalopathy, HCC or liver related death. SHG was measured on 4μm FFPE sections. A mask of the biopsy area was created with TPEF. Image processing was performed by two independent researchers, blinded to Ishak stage, using in-house macros and each using different software (Image J & Matlab). PASW 17.0 was used for statistical analysis.

Results The SHG score was acquired in 58 of 83 biopsies (66%). 25 were excluded due to signal artefact from paraffin, obscuring SHG signal from collagen. There was no significant difference in scoring by two researchers ($p<0.001$). The median SHG score was 15.96% (IQR 11.3—21.3%). Abstract PMO-150 figure 1 shows the median SHG score for each IS. SHG signal increased with disease severity (IS3:10.1%; IS4:14.1%; IS5:14.1%; IS6:21.2%). LRO occurred in 15 patients after a median of 57 months post-biopsy. The mean SHG score at index biopsy was 19.1% in those with, and 16.6% in those without subsequent LRO (non-significant difference, $p>0.05$).



Abstract PMO-150 Figure 1

Conclusion SHG has proved to be a valuable method of quantifying collagen in liver fibrosis and does not require standard histochemical stains. Further development of this quantitative measure may result in a tool to assess response to anti-fibrotic therapy and progression to clinical endpoints.

Competing interests None declared.

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PMO-151 EXCELLENT DISEASE FREE AND OVERALL SURVIVAL RATES AFTER LONG TERM FOLLOW-UP OF A COHORT OF INJECTING DRUG USERS TREATED FOR HCV

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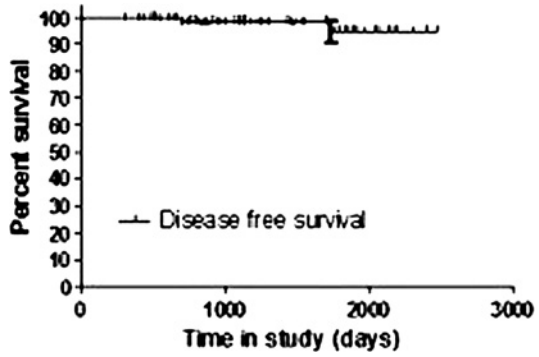
Introduction Hepatitis C virus (HCV) is common in injecting drug users (IDU's), but <10% of those known to be infected are



Abstract PMO-151 Figure 1 HCV free survival in patients who achieve SVR.

currently treated. Antiviral therapy for injecting drug users with HCV in North East London is provided by a Blood Borne Virus nursing team based in community outreach clinics. We aimed to examine HCV and drug related outcomes in patients treated by this service.

Methods A retrospective notes analysis was performed of all patients treated between September 2006 and June 2011. Data were collected on demographics, HCV treatment, health and social outcomes. Minitab 16 and Prism 5 were used to perform statistical analysis. The Wilcoxon signed rank test, unpaired T test, and Mann–Whitney test were used to analyse drug and alcohol and demographic outcomes.

Results 152 patients were treated. 77 were active IDU's and 75 were ex-IDU's. 80% were male. 45% were genotype 1, 54% were genotype 2 or 3. 81% of patients were compliant with treatment. 105 patients (69%) achieved an end of treatment response (ETR) Sustained viral response (SVR) rate was 58%. Overall survival post SVR was 100% and HCV free survival was 98%. Two patients were re-infected at 14 and 51 months after treatment (See Abstract PMO-151 figure 1) five deaths occurred 21, 32, 35, 37 and 44 months after treatment finished. All deaths were in non-responders. No deaths were attributable to treatment. There was no significant difference in demographics or treatment outcomes between active and ex-IDU's. Full data on heroin injection use was available in 133 patients, crack use in 58 patients and alcohol in 72 patients. Overall heroin injection use pre- and post-treatment reduced from 51% of patients to 38% ($p<0.0001$), crack use reduced from 34% to 19% ($p<0.0001$), and alcohol use from 38% to 32% ($p=0.0035$).

Conclusion This is the largest study published to-date examining the impact of antiviral therapy in patients actively using illicit drugs. Of importance long term follow-up data showing low re-infection rates, a significant reduction in illicit drug use after therapy and excellent disease free and overall survival in patients who achieve SVR is presented. Our findings confirm previous, small scale studies showing that effective treatment for injectors is possible within the appropriate clinical setting.

Competing interests None declared.

PMO-152 CHARACTERISING THE IMMUNE STATUS OF HBV-SPECIFIC CD4+ AND CD8+ T-CELLS PRODUCING IL-17 IN PATIENTS WITH CHRONIC HEPATITIS B (CHB) VIRUS INFECTION

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Introduction Virus specific CD4+ and CD8+T-cells are essential in the control of HBV infection and their functions are tightly regulated by immune homeostatic control mechanisms, such as the programmed death (PD1) pathway, Tim3 and CD244. These pathways maintain the equilibrium between efficient control of viral replication and unnecessary inflammatory/immunopathological damage. Recent studies have described a unique subset of T-cells which produce IL-17. Preliminary studies suggest that IL-17-producing T-cells maybe involved in inflammation and liver damage but largely the role of HBV-specific IL-17 producing CD4+(Th17) and CD8+(Tc17) T-cells during chronic HBV infection remains elusive. Moreover, the impact of immunoregulatory signatures on these T-cells are unknown. The aim of this study was to characterise the role and immune status of virus-specific CD4+ Th17 and CD8+ Tc17 cells in CHB patients.

Methods Peripheral blood mononuclear cells were collected from ten treatment naïve HBeAg+ CHB patients and ten healthy controls. PBMC's were stimulated with recombinant HBcAg/HBsAg and PMA/Ionomycin. The frequency of total and virus-specific CD4 and CD8 T-cell producing IL-17/IFNg and the expression of T-cell immunoregulatory molecules PD1, Tim3 and CD244 was analysed by flow cytometry.

Results Total number of CD8+ T-cells producing IL-17 was not different between chronic HBV patients and healthy controls. However HBV-specific Tc17 cells were significantly higher in CHB-patients compared to controls ($p=0.007$). Total Th17 were also higher in CHB-patients compared to controls ($p=0.03$) however the difference was more pronounced in HBV-specific CD4+ Th-17 ($p=0.003$). Upon analysis of the immune-homeostatsis signatures we found a higher expression of PD1 and CD244 on HBV-specific CD4+ and CD8+ T-cells producing IFNg ($p<0.001$ and $p=0.026$ respectively) in CHB patients. No expression of Tim3 was found on these cells. However, HBV-specific Th17 cells in the CHB patients did not express PD1 or CD244 but had levels of Tim3 significantly lower than healthy controls ($p=0.027$).

Conclusion This study reveals the involvement of virus-specific Th17 and Tc17 in the pathogenesis of chronic HBV infection. Interestingly, we observe differential patterns of immunoregulatory signatures operational within the populations of virus-specific T-cells producing IFNg and IL-17 which may influence their role in HBV disease.

Competing interests None declared.

PMO-153 HEPATITIS A VIRUS VACCINATION IN PERSONS WITH HEPATITIS C VIRUS INFECTION: CONSEQUENCES OF IMPLEMENTATION IN LOW INCIDENCE AREAS

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Introduction Hepatitis A virus (HAV) superinfection in persons with hepatitis C virus (HCV) infection has been associated with a high mortality rate. Consequently HAV vaccination is recommended by many authorities for this patient group. The incidence of HAV is low and has been reducing in many areas, including Western Europe and the USA. The aim of this study was therefore to determine the cost and clinical consequences of routine vaccination in persons with HCV infection.

Methods To determine the mortality risk of HAV superinfection a meta-analysis including studies reporting mortality in HCV infected persons was done using RevMan 5.1 (Cochrane Collaboration). Data were extracted independently by two investigators and recorded on a standardised spreadsheet. The pooled mortality estimate was used