5 AALF patients sampled (Abstract P95 figure 3). Intra-hepatic levels of IL-10 (2 vs 0.6; p=0.03) and SLPI (442 vs 116; p=0.004) were higher in patients with AALF compared to controls, whereas no difference in TNF-α (24 vs 19; p=0.3) concentration was detected. The percentage of monocytes phagocytosing *E coli* was significantly reduced in ALF compared to HC (69 vs 92%; p=0.008).

Conclusion In AALF, circulating monocytes show modulations in intracellular signalling pathways compatible with ET and display reduced phagocytic capabilities. Our data also indicate that hepatic production of anti-inflammatory mediators, IL-10 and SLPI, may play a pivotal role in induction of ET monocytes and thus increase the risk of infection in AALF.

P96 SERUM PROTEIN N-GLYCOSYLATION AS A BIOMARKER OF PAEDIATRIC NAFLD

doi:10.1136/gutjnl-2011-300857a.96

[1]E Fitzpatrick, [2]B Blomme, [3]A Quaglia, [4]R D Bruyne, [2]H V Vlierberghe, [1]A Dhawan. *[1]Paediatric Liver, GI and Nutrition Centre, King's College Hospital; [2]Department of Gastroenterology and Hepatology, Ghent University Hospital, Belgium; [3]Institute of Liver Studies, King's College Hospital; [4]Department of Paediatric Gastroenterology, Hepatology and Nutrition, Ghent University Hospital, Belgium*

Introduction Serum protein N-glycosylation has previously been shown to distinguish adult patients with simple steatosis from those with non-alcoholic steatohepatitis (NASH). The pattern of the disease in paediatric patients is distinct from adults.

Aim The aim of this study was to characterise the glycomic profile of children with varying degrees of NAFLD to identify potential biomarker profiles of disease.

Method Children with biopsy proven non-alcoholic fatty liver disease (n=51) were recruited from a tertiary paediatric hepatology unit. Liver biopsy was scored according to NAFLD activity score. Blood was taken on day of biopsy for analysis. Serum protein N-glycosylation patterns were assessed with DNA-sequencer assisted fluorophore-assisted capillary electrophoresis (DSA-FACE) and compared with histology.

Results Median age at biopsy was 13.3 years (range 4.5–17.4). 31 were male. Median BMI z-score was 1.81. 23 children scored as simple steatosis/borderline NASH and 28 as true NASH. 18 children had no/minimal fibrosis (< F2) and 33 had significant fibrosis (≥ F2). Similar to previous work in adult patients with NAFLD, peak 1 (NGA2F) was the most significantly raised N-glycan in paediatric NASH patients with peak 5 (NA2) demonstrating the greatest decrease. The logarithmically transformed ratio of peak 1 to peak 5 (Glycomarker) was −0.85 (SD 0.22) in simple steatosis/borderline NASH and −0.73 (SD 0.12) in NASH (p=0.02). The biomarker correlated well with the amount of lobular inflammation with a consistent increase with ascending grade of inflammation. There was also a trend towards significance in differentiating patients with significant fibrosis ≥ F2; −0.74 (SD 0.13) from patients with no/minimal fibrosis < F2; −0.86 (SD 0.24), (p=0.06). Glyco-analysis of immunoglobulin G (IgG) confirmed the undergalactosylation status with a significant increase in peak 1 (NGA2F; p=0.024) and a significant decrease of peak 6 (NA2F; p=0.01) on IgG. In multivariate analysis of the Glycomarker, GGT, AST and INR, only the Glycomarker displayed a significant result for distinguishing simple steatosis from NASH (p=0.019).

Conclusion In conclusion, the findings in this study are novel in that they represent the first Glycomic analysis of paediatric NAFLD. They validate findings in adults in that a Glycomarker can serve reliably as a biomarker of severity of disease in NAFLD. The same N-glycosylation alterations are observed in paediatric NASH patients when compared to an adult population and therefore the same biomarker can be used. B cells play a dominant role in the N-glycan alterations of NASH patients, both in an adult and paediatric population.

P97 LYMPHOCYTE-HEPATOCYTE INTERACTIONS: HEPATITIS C VIRUS CHANGES THE RULES

doi:10.1136/gutjnl-2011-300857a.97

[1]Z Stamataki, [1]O S Qureshi, [1]G M Reynolds, [2]L Hibbert, [2]J Waters, [2]G R Foster, [3]J Z Rappoport, [4]S G Hubscher, [1]D H Adams, [1]J A McKeating. *[1]MRC Centre for Immune Regulation, Institute of Biomedical Research, University of Birmingham, UK; [2]The Liver Unit, Queen Mary's University of London, UK; [3]School of Biosciences, University of Birmingham, UK; [4]Department of Pathology, University of Birmingham, Edgbaston, UK*

Introduction Hepatitis C Virus (HCV) is a major cause of liver disease worldwide. Innate and adaptive cellular immune responses play a critical role in resolving acute HCV infection. However, the majority of infections are not cleared, resulting in a progressive chronic liver disease consistent with inadequate immune control. Evidence from human and animal models suggest that T cells play a critical role in controlling acute HCV infection, yet the mechanism (s) behind their failure to control chronic HCV replication are unknown. HCV replicates predominantly in the liver and virus specific immune cells need to target infected hepatocytes to control virus replication. HCV specific effector cells have been reported to home to the liver, however, little is known on their subsequent trafficking and fate within the organ.

Aim Our aim is to investigate the role of HCV infection on lymphocyte-hepatocyte interactions, migration and immune cell effector function.

Method We used in vitro and ex vivo models to study the effect of HCV infection on lymphocyte–hepatocyte interactions. Primary lymphocytes and hepatocytes were used in combination with hepatoma cell lines and replication competent HCV clones. Ex vivo lymphocyte migration assays were performed using biopsy material and tissue from explanted liver. Results were confirmed by in vivo observations using tissue sections from patients with end stage liver disease of viral and non-viral origin. Experimental techniques included immunohistochemistry, flow cytometry, fixed and live cell time-lapse confocal microscopy.

Results We demonstrate: (1) A role for hepatocyte ICAM-1 in mediating T-lymphocyte adhesion and migration; (2) T-lymphocytes migrate spontaneously through hepatocyte monolayers via cell-cell junctions; (3). HCV enhances T-cell transmigration and pro-inflammatory cytokine expression. Our data demonstrate the existence of novel interactions between T cells and hepatocytes that are modulated in HCV infection. The nature of the T cell-hepatocyte interactions may have an impact on T-cell effector function and the outcome of anti-viral immune responses.

Conclusion Interaction with HCV-infected hepatocytes alters T-cell trafficking and cytokine expression, providing a novel mechanism for HCV to persist in the liver.

P98 THE EFFECTS OF T_{H17} CYTOKINES ON LIVER PARENCHYMAL CELLS SHAPE THE MICROENVIRONMENT FOR LOCAL GENERATION OF T_{H17}/T_{C17} IN INFLAMMATORY LIVER DISEASE

doi:10.1136/gutjnl-2011-300857a.98

[1]E H Humphreys, [1]G M Muirhead, [1]R H Bhogal, [2]B Eksteen, [1]S C Afford, Ye H Oo, [1]D H Adams. *[1]Centre for Liver Research, and NIHR Biomedical Research Unit, Institute of Biomedical Research, University of Birmingham, UK; [2]Snyder Institute of Infection, Immunity and Inflammation, Health Research and Innovation Centre, Calgary, Canada*

Introduction IL-17 secreting T cells ($Th17_{h17}$ and $Tc17_{c17}$) are subsets of T lymphocytes that have been implicated in autoimmunity, inflammatory disease and provide a link between the innate and adaptive immune responses. High numbers of IL-17-producing T cells are found in close proximity to bile ducts in several liver diseases