Abstract P41 Figure 2 Expression level of SPP1 and CD109 in normal liver and HCV, HBV and HH related cirrhosis and HCC.

U133Plus2.0 gene expression arrays. Public microarray databases ArrayExpress and Gene Expression Omnibus were mined for liver gene expression data measured using Affymetrix U133Plus2.0 array platform. Annotations for all identified liver samples were curated and relevant samples selected for RMA normalisation. Principal component analysis and differential gene expression analysis were carried out using R Bioconductor. The lists of differentially expressed genes were created by separate comparison of each disease group against normal liver samples. The lists of p value corrected statistically significant genes were further filtered for twofold expression change. Disease specific gene lists were created. Genes identified as highly expressed in HH-related HCC were validated using quantitative RT-PCR.

Results Public databases yielded gene expression data on normal liver (n=51), HCV/cirrhosis (n=59), HCV-related HCC (n=126), HBV/cirrhosis (n=4), and HBV-related HCC (n=5). Principal component analysis showed clustering of normal, cirrhosis and HCC samples. Using a twofold cut-off, 16 genes were differentially expressed in HH-related HCC compared to normal liver, 502 genes in HBV-related HCC and 29 genes in HCV-related HCC (Abstract P41 figure 1). No differentially-expressed genes were common to all three groups. Genes CD109 and SPP1 were identified as highly expressed in HH-related HCC compared to all other groups (Abstract P41 figure 2) and their expression in normal and HH samples were confirmed with quantitative RT-PCR.

Conclusion Comparison of global gene expression profiles yielded sets of differentially expressed genes specific to liver disease aetiology in HCC related to HCV, HBV and haemochromatosis. Two genes highly expressed in haemochromatosis-related HCC were identified that might be useful as disease-specific markers.

P42 ROLE OF ACOUSTIC RADIATION FORCE IMPULSE (ARFI) ELASTOGRAPHY IN THE NON-INVASIVE ASSESSMENT OF LIVER FIBROSIS IN CHRONIC VIRAL HEPATITIS: A SIMULTANEOUS COMPARISON WITH LIVER HISTOLOGY IN A SECONDARY CARE SETTING

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Introduction The estimation of liver fibrosis in patients chronically infected with hepatitis B or C is crucial in determining the prognosis, surveillance, and treatment decisions. Liver biopsy is still the gold-standard for assessing liver fibrosis. However, it is susceptible to variability in interpretation and carries an associated morbidity and mortality. ARFI elastography is a novel, non-invasive technology incorporated into conventional B-mode ultrasonography that is used to assess liver fibrosis.

Aim To compare ultrasound elastography stiffness scores in patients with chronic hepatitis B or C disease with concomitantly acquired histopathology specimen scores.

Method A total of 80 patients underwent ARFI elastography, real time ultrasound examination of the liver and concomitant ultrasound guided biopsy between January 2010 and December 2010. Of these patients, 34 patients had chronic viral hepatitis (18 Hepatitis B, 16 Hepatitis C). All liver biopsies were carried out to aid the management of the patients. The ARFI elastographies and the liver biopsies were carried out by a single operator. Elastography scores were obtained (using a Siemens Acuson S2000 and 4C1 probe 4 MHz transducer) in the same anatomical region of the liver as the biopsy which was taken using a Biopince 18 gauge Menghini type needle. All liver histology was graded for fibrosis using the Ishak fibrosis staging system.

Results Four out of 34 patients with chronic viral hepatitis were excluded as two did not have elastography scores recorded and two did not have their liver histology graded for fibrosis. Of the patients who were included, 15 had chronic hepatitis B and 15 had chronic hepatitis C. The mean age of the patients was 40.0 years and the number of male patients was 24. The mean ARFI elastography score and mean Ishak staging were 1.59 and 1.63 respectively. A direct correlation was found between ARFI elastography measurements and Ishak staging (Spearman's rank correlation =0.31). The negative predictive value for fibrosis using ARFI elastography was 94%.

Conclusion A significant correlation between ARFI elastography measurements and liver histology is seen in this study carried out on consecutive unselected cases in a secondary care setting. ARFI elastography is an accurate non-invasive method of excluding liver fibrosis in patients with chronic viral hepatitis. The technology is widely applicable as the software can be integrated into a conventional ultrasound system and an elastography examination can be carried out during a routine screening ultrasound scan of the liver.

Viral hepatitis

P43 CELLULAR PROTEIN CYCLOPHILIN A IS INVOLVED IN HEPATITIS B VIRUS REPLICATION AND ITS INHIBITION WITH DEB025 (ALISPORIVIR) OR NIM811 DEMONSTRATES ANTIVIRAL ACTIVITY IN VITRO

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Introduction Cyclophilins are ubiquitously expressed intracellular proteins that have enzymatic activity—peptidyl-prolyl cis-trans isomerase, and are involved in regulation of mitochondrial/cytosolic transport in the cells. DEB025 (Alisporivir) and NIM811 are non-immunosuppressive cyclophilin inhibitors that efficiently block hepatitis C virus replication by targeting host rather than viral proteins, however the potential impact of cyclophilin inhibition on hepatitis B virus (HBV) life cycle is poorly understood.

Aim In the present study we employed a panel of liver cell lines to investigate the ability of cyclophilin inhibitors DEB025 (Alisporivir)