Hepascore were best at detecting advanced fibrosis, but other panels performed adequately with similar AUCs.

Conclusion In this cohort of previous non-responders to HCV treatment, the ability to discriminate advanced fibrosis appears to be similar amongst most of the markers tested. In contrast, of the eight markers tested in this study, the ELF panel appears to have the most consistent diagnostic performance across all stages of fibrosis and performs well in the detection of minimal and mild fibrosis. ELF testing would permit stratification of previous non-responders for further anti-HCV and anti-fibrotic therapy and for screening for complications of cirrhosis.

P16 NON-INVASIVE DETECTION OF OESOPHAGEAL VARICES: COMPARISON OF NON-INVASIVE ASSESSMENT OF SYSTEMIC HAEMODYNAMICS WITH LABORATORY PARAMETERS AND PREDICTIVE SCORES

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Introduction Endoscopic screening for varices (OV) is advised in cirrhosis, repeated every 1–3 years, with primary prophylaxis given to large OV. This is costly to endoscopy units, unpleasant for patients and multiple procedures may affect compliance. Cirrhosis is characterised by a hyperdynamic circulation; novel tools make non-invasive assessment possible.

Aim Toassess accuracy of non-invasive tests of systemic haemodynamics (Cardiac output and index (CO, CI), systemic vascular resistance (SVR), baroreceptor sensitivity (BRS) to detect OV and compare with other non-invasive methods (Child–Pugh score (CPS), albumin, platelet count, prothrombin time (PT), AST/ALT ratio, platelet count/spleen diameter ratio).

Method Prospective study of 29 cirrhotic patients. Systemic haemodynamics were assessed non-invasively with the Finometer®, hepatic venous pressure gradient (HVPG) assessed portal pressure and gastroscopy for variceal size (none/small (absent), medium/large (large)).

Results 69% male, median age 47 (42–55) years, CPS 6 (Class A 18, B 10, C 1) and MELD 10 (8–13). Prevalence OV 79%, large 38%. Significant differences in haemodynamics were seen between patients classified as absent or large OV (CO 5.6 vs 8.0lpm, CI 3.0 vs 4.5 l/min/m2, SVR 1.17 vs 0.77MU, HVPG 14 vs 19 mm Hg, BRS 5.8 vs 3.2 ms/mm Hg, CPS 5 vs 7, respectively). Comparisons summarised in the Abstract P16 Table 1. At a cutoff of 7.15lpm, CO predicted large OV with 73% sensitivity, 78% specificity and correctly classified 76% of patients. At a cutoff of 3.66 l//min/m2, CI predicted large OV with 82% sensitivity, 83% specificity and correctly classified 79% of patients. This compares to 78% correctly classified using HVPG, 76% CPS and 59% PT.

Abstract P16 Table 1 Results

Non-invasive test	Presence OV AUROC (95% CI)	Statistical significance	Large OV AUROC (95% CI)	Statistical significance
CO	0.71 (0.49 to 0.92)	p=0.029	0.84 (0.69 to 0.99)	p<0.001
CI	0.76 (0.51 to 0.95)	p=0.004	0.86 (0.71 to 1.0)	p<0.001
SVR	0.63 (0.40 to 0.86)	NS	0.77 (0.59 to 0.94)	p=0.002
HVPG	0.91 (0.74 to 1.0)	p<0.001	0.81 (0.64 to 0.98)	p<0.001
BRS	0.81 (0.53 to 0.96)	p=0.014	0.81 (0.64 to 0.98)	NS
Platelet count	0.75 (0.53 to 0.96)	p=0.011	0.59 (0.36 to 0.82)	NS
Albumin	0.32 (0.02 to 0.61)	NS	0.63 (0.42 to 0.84)	NS
PT	0.89 (0.79 to 0.99)	p=0.015	0.70 (0.52 to 0.88)	p=0.015
CPS	0.85 (0.75 to 0.95)	p<0.001	0.74 (0.54 to 0.94)	p=0.009
AST/ALT ratio	0.73 (0.55 to 0.91)	p=0.006	0.68 (0.46 to 0.91)	NS
Platelet/spleen	0.78 (0.59 to 0.97)	p=0.002	0.69 (0.48 to 0.90)	p=0.040

Conclusion Non-invasive assessment of systemic haemodynamics appears a promising technique to identify cirrhotic patients at risk of having large oesophageal varices. Larger prospective validation studies need to be performed. Standard laboratory tests and predictive scores (except Child–Pugh score) are not reliable to accurately predict large oesophageal varices.

P17 ANTICOAGULATION FOR LIVER FIBROSIS: A PILOT STUDY IN HEPATITIS C INFECTED PATIENTS

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Introduction Therapy directed towards the underlying cause of liver disease is not always successful, and anti-fibrotics are urgently required to slow disease progression in these patients. Recent evidence demonstrates a role for the coagulation cascade in promoting liver fibrosis. It is accepted that thrombin can activate hepatic stellate cells via PAR1 cleavage and we have previously shown that the prothrombotic Factor V Leiden mutation is associated with accelerated fibrosis in chronic HCV infection. Further, in animal studies, we have shown that warfarin anticoagulation ameliorates hepatic fibrosis. There is now an urgent need to evaluate the effect of anticoagulation on hepatic fibrosis in human studies.

Aim To evaluate the safety and impact of warfarin anticoagulation on the progression of liver fibrosis using non-invasive tests in HCV patients: a pilot study.

Method HCV patients (n=10, mean age 49.5 years, range 42–62 years, 6=M, 4=F) with moderate fibrosis (Ishak stage 3–4), who had previously failed anti-viral therapy were enrolled. Routine blood tests, liver stiffness measurements and serum markers of fibrosis (ELF testing), were performed at 0, 8 and 16 weeks. A subset of patients (n=5) had hepatic transit times performed at each time point. Patients were given no anticoagulation between 0 and 8 weeks (observation period) and anticoagulated with warfarin to maintain an INR of 2–3 between 8 and 16 weeks (treatment period). Wilcoxon signed ranks test used to compare paired data.

Results Warfarin anticoagulation significantly reduced median liver stiffness values (8 vs 16 weeks: 9.60 vs 6.90 kPa, p=0.012; 0 vs 16 weeks 7.70 vs 6.90 kPa, p=0.043). There was no significant difference in liver stiffness values between the start and end of the observation period. A non significant trend towards prolongation was seen in mean hepatic transit times following anticoagulation (11.0 vs 12.1 s; p=0.23). There were no significant differences between ELF test scores, serum ALT values and APRI scores following anticoagulation. No serious adverse events were reported during the anticoagulation period. One patient had a minor adverse event, requiring temporary cessation of warfarin treatment, and was excluded from the analysis.

Conclusion A short period of warfarin anticoagulation demonstrated a significant improvement in liver stiffness measurements in HCV patients with pre-existing moderate fibrosis, with no major adverse events. These results suggest that warfarin anticoagulation may have a beneficial effect on liver fibrosis in HCV patients. Larger human studies are required to further evaluate its anti-fibrotic potential.

P18 THE IMPACT OF HEALTH PROTECTION AGENCY GUIDELINES ON THE MANAGEMENT OF HEPATITIS B IN WEST KENT

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Introduction In 2006, the Health Protection Agency (HPA) issued standards regarding the follow-up of Hepatitis B infection. West

Kent has a catchment population of 655 000 and a local viral hepatitis service.

Aim We wished to assess the management of Hepatitis B infection within West Kent following the introduction of these guidelines and audit local compliance.

Method We identified all patients who tested positive for Hepatitis B surface Antigen (HBsAg) over a 2-year period (January 2006 until December 2007) from microbiology records. We examined the referral source, and whether basic demographic, biochemical, and virological parameters had been recorded. In addition, we examined whether the patient was referred to the viral hepatitis service. The referral source was grouped into six categories: Primary Care, Obstetrics, Genito-Urinary Medicine, Occupational Health, General Medicine and "Other".

Results 21 366 screening tests for Hepatitis B were performed during the 2-year period. Obstetrics accounted for 8299/21 366 (38.8%) of requests, followed by Genito-Urinary Medicine 6998/21 366 (32.8%), Primary Care 4284/21 366 (20.1%), and "Other" with 1128/21 366 (5.2%). Occupational Health (329/21 366) and General medicine (328/21 366) accounted for 1.5% of all screening requests. 89/21 366 (0.4%) of tests were positive for HBsAg. The median age of patients testing positive for HBsAg was 34 years. Ethnicity data were missing in 60% (53/89) of positive results. 59% (52/89) of positive results had been requested in Primary Care, followed by 21% (19/89) in General Medicine, and 11% (10/89) in Genito-Urinary Medicine. 57% (41/89) of patients testing positive for HBsAg had liver function tests checked within 6 months. 44% (39/89) of patients were referred on to specialist hepatology services. 28% (25/89) had radiological imaging following the positive HBsAg result. 6% (5/89) patients met the diagnosis criteria for acute hepatitis B but only two of these patients were referred on to specialist services.

Conclusion During the 2-year study period, 3.3% of the population in West Kent was tested for Hepatitis B infection. The majority of positive cases were in samples referred from primary care. However, less than half the patients with a positive HBsAg result were referred to specialist services. This contravenes HPA guidelines and leaves patients at risk of developing the sequelae of untreated Hepatitis B infection. Our experience shows that the HPA standards are yet to fully penetrate into routine clinical practice. With thanks to the Department of Microbiology, Maidstone Hospital.

P19 SERUM CREATININE UNDERESTIMATES RENAL FUNCTION IN PATIENTS WITH CIRRHOSIS AS COMPARED TO PATIENTS WITH ORGANIC RENAL DISEASE

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Introduction Although serum creatinine is a well-recognised marker of prognosis in cirrhosis, it is only an indirect marker of renal function as it is affected by various extra-renal factors. The measurement of glomerular filtration rate (GFR) by the plasma clearance Cr-EDTA is an acceptable substitute of the gold standard of inulin clearance. We assessed the correlations of serum creatinine with GFR measured by Cr-EDTA in patients with cirrhosis in comparison with patients with renal disease.

Method We analysed data from 298 consecutive patients who underwent GFR assessment by Cr-EDTA as part of their liver transplant work-up. We collected similar data on 187 consecutive non-cirrhotic patients who attended the renal outpatient clinic. GFR was assessed by bolus infusion of Cr-EDTA and single or serial serum measurements after 2, 4, 6 and 24 h. Spearman test was used to correlate serum creatinine and GFR in renal and liver patients. The significance of the difference between the correlations from the two groups was calculated by transforming the Spearman's r to Fischer's z-score, estimating the SE of difference between the two correlations and finally dividing the differences between the two z-scores by the SE. If the result was 1.96 or higher, then the difference in the correlation was considered significant in the 0.05 level.

Results Serum creatinine significantly and inversely correlated with GFR in patients with cirrhosis ($r=-0.702$, $p<0.001$) and renal disease ($r=-0.856$, $p<0.001$), however the difference of the correlation was significant between patients with renal disease and patients with cirrhosis ($p<0.05$). When analysis was performed according to gender, there were significant correlations of serum creatinine and GFR in patients with cirrhosis (males $r=-0.806$ and females $r=-0.699$) and renal disease (males $r=-0.877$ and females $r=-0.890$). Moreover, the difference of the correlation was again significant among male and female patients with renal disease and cirrhosis and notably in male compared to female patients with cirrhosis ($p<0.05$). Therefore, for a given GFR, patients with cirrhosis have lower serum creatinine values than patients with renal disease. Moreover, female patients with cirrhosis have lower serum creatinine values than male patients with the same GFR.

Conclusion Serum creatinine underestimates renal function in patients with cirrhosis compared to patients with renal disease. Serum creatinine cut-offs used to define renal failure in the general population are not applicable to patients with cirrhosis and should be re-evaluated as they systematically underestimate renal function.

P20 FUNCTIONAL CAPACITY IS SIGNIFICANTLY IMPAIRED IN PRIMARY BILIARY CIRRHOSIS AND RELATED TO ORTHOSTATIC SYMPTOMS

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Introduction Primary biliary cirrhosis (PBC) is associated with a significant and diverse symptom burden independent of conventional markers of disease severity. It is unclear how this symptom load impacts upon function in day to day living and, if functional impairment is present, which symptom(s) are predominantly responsible.

Aim We assessed patient-reported functional ability and its interrelationship with symptoms in PBC.

Method 81% (75/93) of the PBC symptom study cohort, originally derived in 2005, consisting of all PBC patients resident within the geographical area defined by zip codes NE1-NE25 (Newcastle-upon-Tyne and surrounding suburbs) completed a further set of postal-return symptom assessment tools in 2009. This included the disease specific symptom assessment tool the PBC-40, a marker of autonomic symptom burden, the Orthostatic Grading Scale (OGS), and the patient reported outcome measure health assessment questionnaires (PROMIS HAQ), that assesses functional ability (which was also completed by a liver disease control group (primary sclerosing cholangitis n=31 (PSC) and matched controls (n=55)).

Results Over 4 yrs of follow-up, total symptom burden, assessed using the cumulative PBC-40 domain scores, increased significantly ($p=0.03$). The predominant factor was a significant rise in Cognitive domain scores indicating worsening cognitive symptoms ($p<0.0001$). Functional impairment (PROMIS HAQ) was substantial in the PBC patients and exceeded that seen in the PSC controls. When the individual functional domains of the PROMIS HAQ were