process by which alcohol gives rise to liver injury remains unclear, precluding the informed targeting of interventions based on ameliorating pathogenic processes. Furthermore, we lack reliable biomarkers to identify patients at particular risk of poor outcome at the outset of a liver disease episode in order to target therapy. Several studies have identified the presence, in sub-sets of ALD patients, of antibodies reactive with adduct-modified self-proteins such as malondialdehyde (MDA)-adducted albumin (MDA-HSA) and self-antigens such as cytochrome P450 2E1 (Cyp2E1, arising, it is thought as a consequence of an "altered-self" mechanism). To date, however, the biological significance of these antibodies and the implications that they hold for prognosis and treatment are unclear.
Aim In this study we set out, in a serial cohort of 38 ALD patients (all cirrhotic and all continuing to consume alcohol), to address the biological significance of auto- and allo-antibody responses.
Method Patients were fully phenotyped with regard to their antibody, clinical, biochemical and histological status. Clinical follow-up was then undertaken for 5 years.
Results The presence of both MDA-HSA and Cyp2E1 reactive antibody was significantly associated with risk of death during follow-up (Cyp2E1 AUC for prediction of death during follow-up 0.78 (95% CI 0.64 to 0.93), p=0.01; MDA 0.73 (0.55–0.92, p=0.05). An optimal composite measure based on reactivity to both antigens was highly predictive of risk of death during follow-up (auc 0.83 (0.7–0.96, p=0.005)). Interestingly amongst baseline biochemical parameters only bilirubin was (weakly) predictive of death during follow-up (auc 0.74 (0.62–0.92), all other biochemical parameters p=ns). Individual histological parameters were similarly not predictive of death during follow-up.
Conclusion Antibody reactivity with allo- and auto-antigens in ALD is a predictor of poor outcome and the optimal composite risk measure warrants prospective validation in outcome series. It is unclear at present whether the association with antibody reactivity results from a pathogenetic process (immune-mediated damage driving liver injury) or occurs as a consequence of enhanced injury (increased liver damage enhancing reactivity to these antigens). Further work in this area is warranted.

P14 MYCOPHENOLATE MOFETIL IN PATIENTS WITH AUTOIMMUNE HEPATITIS INTOLERANT TO AZATHIOPRINE

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Introduction Autoimmune hepatitis (AIH) is an immune mediated necroinflammatory condition of the liver. The majority of patients respond to the standard treatment combination of prednisolone and azathioprine. Twenty percent of patients either don't respond, or are intolerant to azathioprine. Several case series supports the use of mycophenolate mofetil (MMF) as a second line agent in refractory AIH. Its role is unclear in patients intolerant to azathioprine.
Aim To evaluate the efficacy and tolerability of MMF for the management of AIH.
Method A retrospective case note review from January 2000 to March 2010 in patients diagnosed with AIH (immune profile and liver biopsy). Patients on MMF were identified and evaluated. Treatment response to MMF was defined as a biochemical remission within 4 weeks of treatment commencement and treatment failure as either a non-response or relapse while on standard therapy.
Results 117 patients with autoimmune hepatitis were identified. 20/117 (17%) received MMF. The median age was 56 years (18–79 years) with male/female, 1:7. Three patients had overlap syndrome with autoimmune cholangitis, PSC and PBC, and six had cirrhosis. All patients were commenced on prednisolone for induction at a median dose of 30 mg (7.5–40 mg) and azathioprine within 3 months for remission. Azathioprine was discontinued due to intolerance following its adverse events, such as leucopenia, nausea and diarrhoea in 18 patients within 4 months (0–24 months). Two patients were true non-responders to azathioprine. All these patients were commenced on MMF at a median dose of 1 g twice daily in addition to low dose maintenance prednisolone. At a median follow-up of 47 months (5–83 months), MMF was well tolerated and 14/19 patients (one lost to follow-up) remained in remission including five patients with cirrhosis. Intolerance to MMF was seen in three patients (skin rash, hair loss) and poor response in two patients.
Conclusion Our case series supports the use of MMF as a second-line agent in AIH patients intolerant to azathioprine. It was well tolerated in patients including those with cirrhosis.

P15 NON-INVASIVE ASSESSMENT OF HEPATIC FIBROSIS IN PRIOR NON-RESPONDERS TO HEPATITIS C VIRUS TREATMENT—A COMPARISON OF EIGHT MARKER PANELS OF LIVER FIBROSIS

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Introduction The detection of advancing fibrosis in patients who have previously failed standard therapy for hepatitis C virus (HCV) is important both for ascertaining prognosis and stratifying patients for further treatment with emerging therapies. Whilst liver biopsy remains the reference standard, non-invasive markers of liver fibrosis may be able to reduce the need for liver biopsy in this group of patients.
Method 80 previous non-responders to pegylated interferon and ribavirin (46 male, 34 female, age 24–98 years, mean 48.9) were recruited from five centres. Serum was taken at the time of liver biopsy. Seven tests of liver fibrosis and simple biochemical markers were compared. These were: Hyaluronic acid (HA); Indirect tests: APRI, Forn's, Fib-4; Tests including HA: SHASTA, Hepascore, Fibrometer and ELF test. Area under receiver operating characteristic curves (AUROC) were plotted for minimal fibrosis (F0–1 vs F2–6), mild fibrosis (F0–2 vs F3–6), moderate fibrosis (F0–3 vs F4–6), and severe fibrosis/cirrhosis (F0–4 vs F5–6).
Results AUROCs (and asymptotic 95% confidence intervals) are presented for each test for minimal, mild and severe fibrosis.

Abstract P15 Table 1 Results

Test	F0–1 vs F2–6 n=26 n=54	F0–2 vs F3–6 n=35 n=45	F0–4 vs F5–6 n=57 n=23
ELF	0.802 0.705–0.900	0.851 0.770–0.932	0.859 0.765–0.953
Hepascore	0.777 0.674–0.880	0.757 0.653–0.861	0.859 0.766–0.925
Fibrometer	0.775 0.669–0.876	0.740 0.632–0.849	0.808 0.698–0.917
SHASTA	0.652 0.532–0.772	0.654 0.535–0.773	0.806 0.691–0.921
HA	0.668 0.551–0.785	0.710 0.597–0.822	0.769 0.637–0.902
FIB-4	0.714 0.597–0.832	0.768 0.666–0.869	0.814 0.704–0.924
Forns	0.717 0.597–0.837	0.763 0.660–0.866	0.813 0.701–0.925
APRI	0.654 0.529–0.780	0.674 0.557–0.791	0.764 0.650–0.878

ELF was best at detecting lesser degrees of fibrosis and was better than the indirect marker panels either with or without HA. ELF and

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