

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 inter-relationship 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