Serum antibodies to nuclear antigens might help diagnose primary biliary cirrhosis

Primary biliary cirrhosis (PBC) is a chronic cholestatic disorder that potentially leads to end-stage liver disease. It has an autoimmune component: patients have high serum levels of anti-mitochondrial and antinuclear antibodies. PBC is associated with various rheumatologic disorders and can exhibit serological positivity for the so called 'rheumatologic' antinuclear antibodies, which include antibodies to extractable nuclear antigens (anti-ENA), and anti-centromere antibodies (ACA). Traditionally, anti-ENA and ACA has been detected by counter-immunoelectrophoresis on thymic and spleen extracts and indirect immunofluorescence on HEp-2 cells, respectively.

More sensitive enzyme-linked and immunoblot assays can now also detect subclasses of specific antibodies within the range of anti-ENA reactivity. These assays have been used by Granito *et al*. to assess the patterns of antibody expression in 105 PBC patients, comparing them with those patterns seen in 162 patients with other autoimmune liver diseases, 30 patients with systemic lupus erythematosus and 50 blood donors. The presence of anti-ENA antibodies was significantly more prevalent in PBC patients than in patients with other autoimmune liver diseases, but less prevalent than in systemic lupus erythematosus. Anti-SSA/Ro-52kD antibodies were detected in 28% of PBC patients (those with more advanced disease), with very low levels in the other liver disorders. ACA were detected in 21% of PBC patients but not in the other subjects.

The authors conclude that anti-SSA/Ro-52kD and ACA have a high specificity for PBC and warrant further investigation for their diagnostic and prognostic potential.

Original article Granito A *et al.* (2007) Antibodies to SS-A/Ro-52kD and centromere in autoimmune liver disease: a clue to diagnosis and prognosis of primary biliary cirrhosis. *Aliment Pharmacol Ther* **26:** 831–838

Inhaled nitrogen oxide prevents inflammatory liver damage after transplantation

A serious complication of liver transplantation is hepatic ischemia/reperfusion (IR) injury, which can cause poor initial function, or even non-function, of the liver graft. The cellular mechanisms underlying liver IR are extremely complex, involving several cell types and different mediators. Identifying a target for therapeutic intervention has, therefore, been difficult, but evidence from human and animal studies suggests that decreased hepatic production of nitric oxide (NO) might be important.

Clinical administration of NO to treat lung injury mediated by inflammation is generally unsuccessful, but it has revealed that inhaled NO (iNO) has various extra-pulmonary activities. Notably, it can inhibit myocardial injury in patients undergoing cardiopulmonary bypass. To investigate whether iNO has similar positive effects on liver IR, Lang *et al*. conducted a prospective, blinded, randomized placebo-controlled trial in patients undergoing liver transplantation. Their primary objective was to test the hypothesis that pre-emptive administration of iNO might decrease IR-induced injury via an anti-inflammatory mechanism.

Patients randomly allocated to receive iNO rather than placebo during surgery had a significantly decreased length of hospital stay and more favourable levels of serum aminotransferases and coagulation times, indicating that iNO hastened the restoration of liver function after transplantation. The authors conclude that clinical use of iNO as an extrapulmonary therapeutic can improve early function of the liver after transplantation. They also suggest that the most likely candidate transducer of extrapulmonary effects of iNO is nitrite, but further investigations are required to elucidate the mechanisms involved.

Original article Lang JD Jr *et al*. (2007) Inhaled NO accelerates restoration of liver function in adults following orthotopic liver transplantation. *J Clin Invest* **117:** 2583–2591

Comparison of minimally invasive and open liver resection techniques

Laparoscopic minimally invasive liver resection (MILR) has been used increasingly over the past decade; however, there have been few published reports that compare the outcomes of MILR with those of open liver resection. Koffron and colleagues reported their experience of MILR procedures performed between 2001 and 2006.