

from healthy volunteers ( $n=22$ ) and patients with other gastric diseases ( $n=12$ ), such as *Helicobacter pylori* infection and IBD.

Positive staining for viral capsid protein 1 was observed in 135 of 165 biopsies, compared with only 7 of 34 control biopsies ( $P\leq 0.001$ ). Enterovirus RNA was detected in 9 of 24 CFS samples, compared with 1 of 21 control samples ( $P<0.01$ ). A non-cytopathic enterovirus was observed in five cultures of biopsy material.

The authors conclude that there is a strong association between enterovirus infection and CFS; this hypothesis is supported by a previous finding that antiviral therapy improves symptoms in patients with CFS. They also suggest that chronic infection with a non-cytopathic, disseminated enterovirus strain might contribute to CFS development, but without visible organ damage, in a subset of patients; stomach biopsy might be useful in identifying such patients.

**Original article** Chia JKS and Chia AY (2007) Chronic fatigue syndrome is associated with chronic enterovirus infection of the stomach. *J Clin Pathol* [doi:10.1136/jcp.2007.050054]

### Intravenous antioxidant therapy does not benefit patients with severe acute pancreatitis

Experiments in rats have demonstrated that combination antioxidant therapy given after induction of acute pancreatitis reduces pancreatic and remote organ injury. Owing to such observations, and despite a lack of convincing clinical data, patients with severe acute pancreatitis have been treated with intravenous antioxidant therapy. Siriwardena *et al.*, therefore, conducted a randomized, double blind, placebo-controlled trial of intravenous antioxidant therapy in patients with severe acute pancreatitis.

Patients ( $n=43$ ) were enrolled between June 2001 and November 2004 from three UK hospitals; all had predicted severe acute pancreatitis defined as an APACHE II score of  $\geq 8$  at admission or within 48 h of admission. All patients were enrolled within 72 h of admission. Randomization was stratified for APACHE II score and hospital site. Antioxidant group patients ( $n=22$ ) received maximal conventional therapy plus intravenous antioxidant (*N*-acetylcysteine, selenium, and vitamin C) therapy for 7 days, whereas placebo group

patients ( $n=21$ ) received maximal conventional therapy plus intravenous placebo for the same period of time.

Antioxidant therapy did not reduce the occurrence of organ dysfunction at 7 days, improve patient outcome or reduce the length of hospital stay. In addition, the study was terminated early (after year 3) because all deaths that occurred were in the antioxidant group (4 vs 0). Although the study was underpowered, the data suggested that antioxidant therapy might be harmful in patients with multiple organ dysfunction at baseline.

The findings of Siriwardena *et al.* question the continued use of antioxidant therapy for patients with severe acute pancreatitis.

**Original article** Siriwardena AK *et al.* (2007) Randomised, double blind, placebo controlled trial of intravenous antioxidant (n-acetylcysteine, selenium, vitamin C) therapy in severe acute pancreatitis. *Gut* 56: 1439–1444

### Heartburn during pregnancy increases the risk of GERD

During pregnancy, women often experience symptoms of GERD, such as heartburn; however, because these symptoms nearly always disappear immediately after labor, no study had investigated whether the presence of these symptoms during pregnancy affected a woman's future risk of developing GERD. Bor and colleagues, therefore, conducted a retrospective study to determine whether heartburn during pregnancy confers a predisposition to GERD.

Participants were 1,180 randomly selected women (aged 18–49 years) identified from primary health-care records from a city district of Turkey who had undergone labor more than 1 year ago. All the women completed a validated reflux questionnaire, which included questions concerning present symptoms of GERD and symptoms of heartburn during each pregnancy. The overall prevalence of GERD—defined as heartburn and/or regurgitation occurring at least once a week within the previous 12 months—was 7.4%. The prevalence of GERD increased with increasing numbers of pregnancies; prevalence of GERD among women with a history of more than two deliveries was 15.1%, but only 1.5% among women with a history of just one delivery. Importantly, whereas the prevalence of GERD was 17.7% for women who experienced heartburn during