**A blue and black logo

Description automatically generated**

**Gut microbiota predicts severity and reveals novel metabolic signatures in acute pancreatitis**

Ammer-Herrmenau C, Antweiler K, Asendorf T, et al. [Gut microbiota predicts severity and reveals novel metabolic signatures in acute pancreatitis](https://gut.bmj.com/content/73/3/485). Gut 2024; 73: 485-495. doi.org/10.1136/gutjnl-2023-330987.

Acute pancreatitis (AP) encompasses a broad range of clinical severity, from mild disease to necrotising forms complicated by infection and organ failure. A number of prognostic scores have been developed but these are often burdensome and rely on parameters occurring too late in the disease course. Recent evidence has suggested the gut microbiome may have a role in prognosticating patients with AP. Ammer-Herrmenau et al., therefore conducted a prospective, observational cohort study recruiting 450 patients with AP from 15 centres across Europe. Buccal and rectal swabs were taken and analysed through 16S rRNA gene sequencing and metagenomic sequencing. Patients were grouped post-hoc based-on AP severity according to the Revised Atlanta Classification (RAC).

Ammer-Herrmenau et al., found that despite correcting for potential confounders, patients with RAC III have a significantly different rectal microbiome compared to patients with RAC I (p=0.024) and RAC II (p=0.009). Rectal microbiome also differed between non-survivors and survivors (p=0.006) and between patients with short (<30 days) and longer (≥30) admission. Using matched cohort analysis, authors identified 16 bacterial species whose abundance within the rectal microbiome differed between severe and non-severe groups. A regression model based on these 16 species plus the presence of systemic inflammatory response syndrome (SIRS) yielded an AUROC (area under the Receiver operating characteristic curve) of 84.8% in discriminating between severe and non-severe AP. The model had a positive predictive value of 66.6% and a negative predictive value of 94%, outperforming current prognostic scores. Further work is required to streamline the process of rectal swab analysis so that results can be back quickly enough to make a meaningful difference to managing patients with AP.