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Summary

A BLOOD-BASED PROTEIN SIGNATURE IDENTIFIES MUCOSAL HEALING IN INFLAMMATORY BOWEL DISEASE: PROSPECTIVE LONGITUDINAL DATA FROM THE MUSIC COHORT

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The prospective multicentre MUSIC study identifies CXCL8, CXCL9, MMP10, and MMP12 as circulating plasma biomarkers of endoscopic mucosal healing in IBD, with CXCL8 showing discrimination comparable to faecal calprotectin in ulcerative colitis.

KEY POINTS

- In 160 patients (64 UC, 96 CD) with 62 achieving mucosal healing at 6 months, CXCL8, CXCL9, MMP10, and MMP12 were significantly lower in those with mucosal healing versus ongoing inflammation (all FDR-adjusted $p<0.001$).
- In UC, CXCL8 achieved an AUC of 0.80 for discriminating mucosal healing and performed comparably to faecal calprotectin (AUC 0.82 versus 0.80; DeLong $p>0.05$), with 95% sensitivity and 67% specificity at a threshold of 12.18 pg/mL.
- MMP10 showed the clearest longitudinal decline with healing across all IBD ($p<0.001$) and UC ($p=0.002$), and CXCL8 declined significantly in UC patients who healed ($p=0.003$).
- CXCL8, CXCL9, MMP10, and MMP12 remained significant in UC; CXCL9, MMP10, and MMP12 remained significant in CD, but CXCL8 was not significant in CD.
- Orthogonal Luminex validation in 36 UC samples showed excellent agreement for CXCL9 ($r=0.97$) and strong correlation for MMP12 and MMP10 ($r=0.93$ and $r=0.78$), though systematic between-platform bias was observed.
- External validation in a separate UC cohort with longitudinal paired blood and endoscopic data is ongoing.

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