UNIQUE METABOLOMIC AND LIPIDOMIC PROFILE IN SERUM FROM PATIENTS WITH CROHN'S DISEASE AND ULCERATIVE COLITIS: EXPERIENCE FROM TWO TERTIARY CENTERS USING NUCLEAR MAGNETIC RESONANCE (NMR) SPECTROSCOPY

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Proton NMR spectroscopy of serum samples from 89 IBD patients identified distinct metabolomic and lipidomic signatures, including decreased atheroprotective apolipoproteins A1 and A2 in patients with higher disease activity.

KEY POINTS

- Serum metabolome differed significantly between 55 Crohn's disease patients, 34 ulcerative colitis patients, and 40 healthy controls, with differences detected in pyruvic acid, histidine, leucine, and valine levels.
- LDL particles shifted from large to small dense particles in Crohn's disease patients, with a similar trend in ulcerative colitis, and cholesterol and phospholipid composition of LDL and VLDL particles were altered in Crohn's disease.
- Serum levels of apolipoprotein A1 and A2 were decreased in Crohn's disease and ulcerative colitis patients with higher faecal calprotectin levels, and GSRS correlated negatively with ApoA2 expression.
- Disease activity assessed by GSRS, endoscopic activity, and faecal calprotectin was associated with decreased levels of atheroprotective apolipoproteins A1 and A2.
- The authors conclude that metabolomic profiling is a promising approach to identify minimally invasive biomarkers and facilitate diagnosis in IBD patients.

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