

Clinical: Diagnosis and Outcome

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Soluble Transferrin Receptor as a Reliable Inflammation-Independent Marker of Iron Deficiency in Crohn's Disease and Ulcerative Colitis

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Background: Iron deficiency is a common complication in inflammatory bowel disease (IBD), including ulcerative colitis (UC) and Crohn's disease (CD).¹ However, standard iron markers are influenced by inflammation, complicating the diagnosis of true iron deficiency.^{1,2} Soluble transferrin receptor (sTfR) has been proposed as a more reliable, inflammation-independent marker of iron demand.³ This study aimed to assess the utility of sTfR in identifying iron deficiency without anaemia (IDWA).

Methods: The ID_IBD study was a multicentre, cross-sectional study. Iron status was classified using two approaches: the ECCO consensus definition, focusing on ferritin thresholds adjusted for inflammatory markers (C-reactive protein [CRP] and faecal calprotectin [FCAL]), and a stricter definition that adds transferrin saturation to the ECCO criteria. sTfR levels were compared across groups, and ROC curve analysis was used to identify optimal diagnostic cut-offs.

Results: This analysis included 411 IBD patients (130 UC, 281 CD) and 178 controls. sTfR showed no correlation with CRP or FCAL. In UC, patients with IDWA had significantly higher sTfR levels (median 1.20 mg/L, IQR 1.02-1.42) compared to non-IDWA patients (median 1.05 mg/L, IQR 0.92-1.22; $p=0.013$). Anaemic UC patients also showed elevated sTfR levels (median 1.27 mg/L, IQR 1.14-1.59) compared to non-IDWA individuals ($p<0.001$). In CD, sTfR did not significantly differ between IDWA and non-IDWA patients but was significantly higher in anaemic patients ($p=0.003$).

Conclusion: sTfR appears to be an inflammation-independent marker of iron status in IBD. It showed potential for identifying IDWA in UC, while in CD it mainly reflected increased iron demand in anaemia. Further longitudinal studies are warranted to validate its role and assess its clinical utility in IBD.

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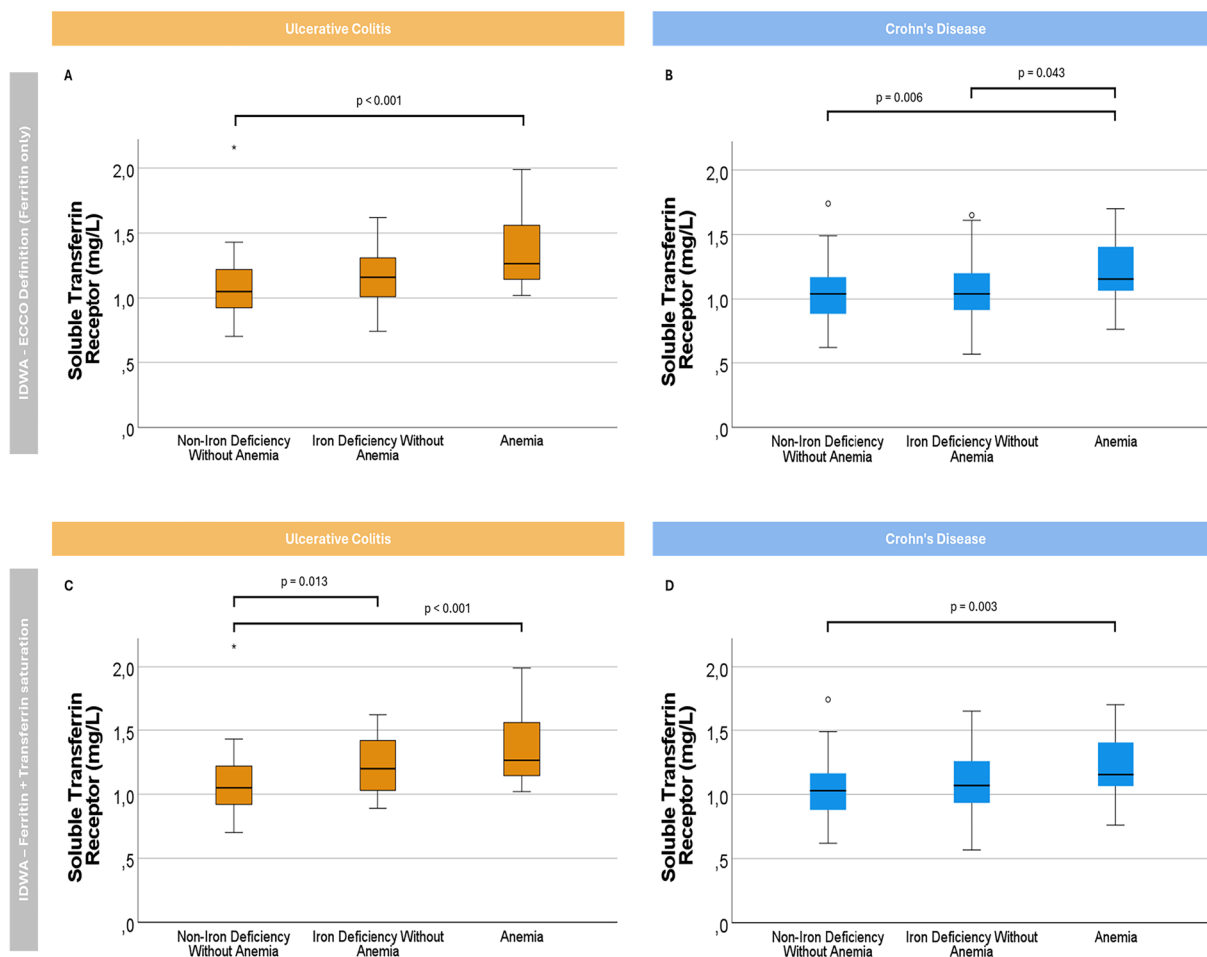


Figure 1. Soluble transferrin receptor levels (mg/L) across iron status categories, in ulcerative colitis and Crohn's disease patients, using two definitions of iron deficiency without anaemia: ECCO consensus criteria, based solely on ferritin (A, B) and a stricter approach combining ferritin and transferrin saturation (C, D) (Statistical analysis: Kruskal-Wallis with Bonferroni correction test for continuous variables.)