Title: **Are raised faecal calprotectin levels present in patients with Bile Acid Diarrhoea?**

**Introduction:**

Calprotectin is a protein that primarily found in neutrophils, monocytes, and macrophages. Although faecal calprotectin (FCP) is a widely used test in inflammatory bowel disease (IBD) management, it is not specific to IBD, as it can be elevated in colorectal carcinoma (CRC), bacterial GI infections, and NSAID enteropathy. Bile acid diarrhoea (BAD), often misdiagnosed as IBS, significantly impacts quality of life and mental health due to diagnostic delays. While some studies suggest elevated FCP levels in BAD patients, its sensitivity and specificity are unknown. This study aimed to identify whether there is a corelation between elevated FCP in patients with confirmed diagnosis of BAD in a large cohort of patients.

**Methods:**

A retrospective review was conducted on all patients who undergone a SeHCAT scan at one district general hospital and also had had their FCP level checked within 3 months of the scan. Patient demographics, history of IBD, Microscopic colitis (MC), NSAIDs usage and previous history of bowel surgery were recorded.

**Results:**

Between October 22 and March 24, a total of 600 patients underwent a diagnostic SeHCAT scan for suspected bile acid diarrhoea (BAD) of whom 497, (63% female, 37% male) median age 52 years old (19-86), had also had a recent FCP checked - median 130 ug/g (range <26->3000). No patient had CRC diagnosed during the study period. 221/497 (44%) had abnormal SeHCAT scans (<20%) suggestive of BAD. 34/221 (15%) had raised FCP levels >50 with an identifiable predisposing condition (IBD:14, MC:7, NSAIDs:13). 49/221 (22%) had a raised FCP with no identifiable predisposing cause. Of the 276 patients with a normal SeHCAT scan (>20%) 115 had a raised FCP >50, in 66 the cause was identifiable (IBD:17, MC:7, NSAIDs:42) while in 49 no obvious cause was identified. There is a negative correlation between FCP levels and BAD.

**Conclusion:**

Modestly raised levels of FCP are common in patients with gastrointestinal disorders. In those with bile acid diarrhoea, lower FCP levels (<50) were frequently observed in association with BAD. However, clinicians should consider BAD as a potential diagnosis in patients with unexplained elevated FCP and intermittent or constant loose stool, particularly when other causes have been ruled out.