Circulating miR-199a and long noncoding-RNA ANRIL as Promising Diagnostic Biomarkers for Inflammatory Bowel Disease

Background & Aims: Inflammatory bowel disease (IBD), involving both Crohn's disease (CD) and ulcerative colitis (UC), represents a chronic, immune-mediated inflammatory disease due to an uncontrolled, ongoing inflammatory response to intestinal bacteria in those with genetic susceptibility.
MicroRNA (miRNA) extrusion from relevant remote organs or tissues is reflected in the expression of miRNAs in serum and plasma.
Both UC and CD patients had higher blood levels of expressed miR-199a. Long noncoding RNA (lncRNA) ANRIL is a proinflammatory gene that mediates nuclear factor κB to play a role in inflammatory diseases, such as IBD. The aim of the current study is to investigate the potential role of both miR-199a and ANRIL in diagnosing IBD in adult patients.
Methods: Sixty-seven IBD patients diagnosed clinically, radiologically, endoscopically, and histologically were included in this prospective cohort study. Participants were classified into 3 groups: the UC group (n = 35), the CD group (n = 32), and the control group (n = 30). Demographics, history taking, laboratory characteristics, and treatments were recorded. Tumor necrosis factor α, miR-199a, and ANRIL were measured.
Results: The findings suggested that miR-199a and ANRIL might be associated with the occurrence or progression of IBD because both genes were
substantially expressed in the peripheral blood of patients with this condition. Receiver-operating characteristic curve analysis indicated that the detection of miR-199a and ANRIL had a predictive sensitivity of 62.9% and 88.6% and a specificity of 70.7% and 96.7% for the occurrence of UC cases, respectively, and a predictive sensitivity of 72.4% and 46.9% and a specificity of 96.7% and 34.7% for the occurrence of CD cases, respectively.
Conclusions: Both miR-199a and ANRIL are abundant in the sera of IBD adult Egyptian patients (UC and CD). Both can represent a noninvasive marker for early disease diagnosis.