

## Evaluation of autonomic nervous system functions in frame of heart rate variability in children with inflammatory bowel disease in remission

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Heart Rate Variability (HRV) is one of the reliable and noninvasive parameters to evaluate autonomic control of the cardiovascular system in patients. The aim of our study was to assess autonomic function in pediatric patients with inflammatory bowel disease (IBD) in remission using Power Spectral Analysis of HRV. Autonomic cardiovascular function was evaluated by time and frequency-domain indexes of spontaneous heart rate in 36 IBD children patients in remission phase and 36 sex and age matched healthy controls. Twenty children with Ulcerative Colitis (UC) and 16 patients with Crohn's disease (CD) were diagnosed according to their history, physical and laboratory examination, endoscopic, histopathological and radiological findings of upper and lower gastrointestinal system. Significant decrease was observed at HRV parameters in IBD patients when compared with control group. These differences was found in some of time domain parameters (NNmean, SDNNtotal, SDNNday) and frequency domain parameters (TP, LF,VLF) ( $p<0.05$ ). Also, there was a significant higher minimum heart rate ratio ( $p<0.04$ ) in patients in comparison to the control group. In the IBD group, there was a relative tendency for parasympathetic suppression and sympathetic predominance which reflects an autonomic dysfunction. This imbalance has a circadian rhythm and it is more obvious during the day. These observations may suggest a previously unrecognized role of chronic inflammation for autonomic modulation in IBD.

**Key words:** inflammatory bowel disease, heart rate variability, pediatrics.

Inflammatory Bowel Disease (IBD) is a multifactorial disease which represents a group of intestinal disorders that causes prolonged inflammation of the digestive tract and is frequently associated with extraintestinal manifestations of illness.<sup>1</sup>

Three types of IBD, Crohn's disease (CD), ulcerative colitis (UC) and indeterminate colitis

(IC) tend to occur in early adulthood, but may be seen at any age from early childhood to advanced ages. While UC comprises mostly (except backwash ileitis) only the colon, whole gastrointestinal system (GIS) from mouth to the anus can be affected in CD. Genetic susceptibility, immun dysregulation and varied response to gut microorganisms and unknown