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Changes in Serum Hepcidin Levels in Children with Inflammatory Bowel Disease during Anti-Inflammatory Treatment

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Abstract : Background: Hepcidin is the central regulator of iron metabolism. Its production is mainly affected by an iron deficiency and the presence of inflammatory activity in the body. The aim of this study was to compare serum hepcidin levels in paediatric patients with newly diagnosed inflammatory bowel disease and hepcidin levels during maintenance therapy, correlate changes of serum hepcidin levels with selected markers of iron metabolism and inflammation and type of provided treatment. Methods: Children with newly diagnosed Crohn's disease (CD) and ulcerative colitis (UC) were included in this prospective study. Blood and stool samples were collected before treatment (baseline). Serum hepcidin, hemoglobin levels, platelet counts, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), interleukin-6 (IL 6), ferritin, iron, soluble transferrin receptors, and fecal calprotectin were assessed. The same parameters were measured and compared with the baseline levels in the follow-up period, during maintenance therapy (average of 39 months after diagnosis). Results: Patients with CD (n=30) had higher serum hepcidin levels (expressed as a median and interquartile range) at diagnosis than subjects with UC (n=13). These levels significantly decreased during the follow-up (from 36.5 (11.5-79.6) ng/ml to 2.1 (0.9-6.7) ng/ml). Contrarily, no significant serum hepcidin level changes were observed in UC (from 5.4 (3.4-16.6) ng/ml to 4.8 (0.9-8.1) ng/ml). While in children with CD hepcidin level dynamics correlated with disease activity and inflammatory markers (ESR, CRP), an only correlation with serum iron levels was observed in patients with UC. Conclusion: Children with CD had higher serum hepcidin levels at diagnosis compared to subjects with UC. Decrease of serum hepcidin in the CD group during anti-inflammatory therapy has been observed, whereas low hepcidin levels in children with UC have remained unchanged. Acknowledgment: This study was supported by grant MH CZ–DRO (FNOl, 00098892).
Keywords : children, Crohn's disease, ulcerative colitis, anaemia, hepcidin
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