Predictive Model of Small Bowel Disease Detected in Capsule Endoscopy in Patients With Established Crohn's Disease

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Introduction: The role of Capsule Endoscopy (CE) in patients with established Crohn's Disease (CD) is not fully determined. Identification of predictive factors of small bowel disease may help the selection of patients that could benefit from CE.

Aims and Methods: Evaluate whether clinical parameters, biomarkers, laboratory and endoscopic findings correlate with the presence of small bowel lesions in patients with CD. A transversal and multicentric study was carried out including patients with CD submitted to CE between 2003 and 2013. Data was analyzed using Pearson Chi-Square, Fischer's exact test, Mann-Whitney, Kruskal-Wallis and logistic regression as appropriate. Lewis score was calculated in all procedures.

Results: One hundred and ninety patients with established CD were included, being 57% female. According to Montreal classification, 75% had diagnosis between 17 and 40 years-old (A2), 43% had ileal disease (L1) and the majority (75%) had non-stricturing non-penetrating disease (B1). Hemoglobin levels were significantly lower (p=0.006) in patients with higher Lewis score (>790) comparing with those with lower scores, although those differences were clinically insignificant (median 13.1 vs 13.9 g/dL). Similarly, albumin was lower (41 vs 45 mg/dL, p<0.001) and C-Reactive Protein was higher (7.65 vs 3.40 mg/L, p<0.001) in patients with Lewis score higher than 790. The presence of small bowel disease diagnosed by CE was significantly related with the need of steroids in the first 6 months after diagnosis (OR 3.088; CI 95% 1.320-7.223), the presence of ileal disease at colonoscopy (OR 4.680; CI 95% 1.969-11.123) and history of weight loss (OR 2.763; CI 95% 1.205-6.335). Albumin levels were inversely related to the presence of small bowel disease (OR 0.843; CI 95% 0.761-0.934). Multivariate logistic regression showed that albumin levels (OR 0.745; CI 95% 0.616-0.901) and ileal disease (OR 13.369; CI 95% 2.287-78.163) were independently related to small bowel disease (AUROC=0.806 (0.712-0.900), with a sensitivity and specificity of 79% with a cutoff of 0.77). Disease behaviour, early need of azathioprine or biologics, C-reactive protein levels, hemoglobin, abdominal pain and diarrhea were not predictive of small bowel disease.

Conclusion: Predictive factors for small bowel disease diagnosed at CE in patients with CD include early need of steroids, ileal disease at colonoscopy, weight loss and lower albumin levels. Regarding those with positive findings at CE, lower hemoglobin and albumin levels and higher C-reactive protein were related with more serious disease. This data may help the selection of patients with CD in which CE could be more useful.