Fecal Lactoferrin: Sensitive Marker for Monitoring Pediatric Patients with Inflammatory Bowel Disease (IBD)

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Introduction: Lactoferrin, a glycoprotein (80kD), is found in many body fluids such as human milk, tears, synovial and seminal fluid. On the other hand, it is a major component of secondary granules of neutrophils. Fecal lactoferrin levels increase quickly with the influx of leukocytes during the onset of intestinal inflammation.

Aim of Study: Monitoring of disease activity (active disease to remission following therapy) by quantitative measurements of fecal lactoferrin in pediatric patients suffering from IBD.

Methods: Fecal lactoferrin levels were determined quantitatively by an enzyme-linked immunoassay (IBD-SCAN™; TechLab®). The test uses a rabbit polyclonal antibody specific for human lactoferrin. Fecal specimens were serially diluted and lactoferrin levels were determined by measurement of the optical density at 450nm/630nm. Lactoferrin standards from 6.25 to 100 ng/ml were used to create a standard curve and to calculate the concentration of the specimens. The levels are reported as μg lactoferrin/g wet weight of feces.

Patients: 84 specimens from a total of 26 patients, ages from 3.5 to 15 years (mean 10 years) were analysed:
- Ulcerative colitis (UC): 46 tests from 12 patients, 8 with two or more specimens
- Crohn’s disease (CD): 33 tests from 8 patients, 6 with multiple examinations
- Indeterminate Colitis (IC): 1 patient with 4 tests
- Controls: 5 patients, 3 with recurrent abdominal pain, 1 with constipation and 1 with feeding problems.

Disease activity was determined by physicians assessment and Truelove index (UC) or PCDAI (CD).

Results:

A) Comparison of fecal lactoferrin and disease activity

B) Fecal Lactoferrin during course of the disease and therapy:

14 year-old boy with UC in first remission. Early and severe relapse. Improvement with CSA but severe relapse. After CMV-treatment induction of remission with AZT

Conclusion:
Quantitative determination of fecal lactoferrin is a good marker of disease activity in IBD. This parameter may help to reduce invasive diagnostics and to optimize medical therapy.