

Fecal Lactoferrin as an Indicator of Intestinal Inflammation in Patients with Antibiotic-Associated Diarrhea. Karen S. Long and Debby K. Taniquchi. Clinical Laboratories, West Virginia University Hospitals, West VA.

Introduction:

Clostridium difficile (CD) is a major culprit of antibiotic-associated diarrhea (AAD) accounting for about 20% of cases. CD infection ranges from mild symptoms that respond to supportive care alone to more serious cases such as pseudomembranous colitis (PMC) having severe intestinal inflammation and diarrhea.

Aim:

To evaluate fecal specimens of subjects suspected of AAD for CD and elevated fecal lactoferrin as a marker of intestinal inflammation.

Methods:

Fecal specimens of subjects suspected of AAD were tested for CD toxins A and B for toxigenic CD, glutamate dehydrogenase (GDH) for CD and for elevated lactoferrin by enzyme-linked immunoassay (ELISA). Specimens were diluted in the respected kit diluents and tested according to the package inserts. The specimen dilution factor and cut-off for each test kit is listed below.

Kit names	Dilution	Cut-off
TOX A/B Test	1:5	0.120 (A_{450nm})
C.Diff CHEK	1:5	0.120 (A_{450nm})
IBD-SCAN [®]	serial 1:10	>7.24 μ g/mL

(Quantitative lactoferrin ELISA)

Incubations were done at 37°C and room temperature for the conjugate steps and substrate development steps, respectively.

Patient Population:

Karen- Do you have some information for this?

It could be titled Specimen Information for describing the type and storage/handling of the fecal specimens.

Statistical Analysis of Test Results

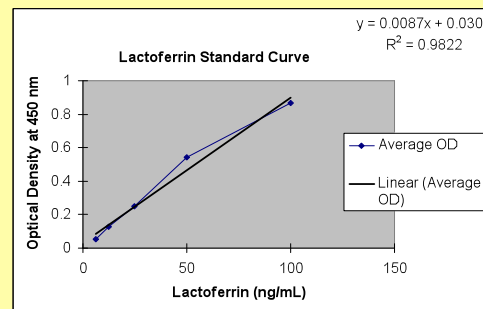
N=197	CD- tox (+) and GDH (+)	CD-tox (-) and GDH (-)	N=244	CD- tox (+) or GDH (+)	CD-tox (-) or GDH (-)
Elevated lactoferrin	47	52	Elevated lactoferrin	78	52
Baseline lactoferrin	4	94	Baseline lactoferrin	20	94

Summary of Statistical Analysis

	¹ N=197 ² N=244	Lactoferrin ³ CD(+) vs. CD (-)	Lactoferrin ³ CD tox (+)orGDH (+)vsCD(-)
Sensitivity (relative)		92.2%	79.6%
Specificity (relative)		64.4%	64.4%
Predictive Pos Value		47.5%	60.0%
Predictive Neg Value		95.9%	82.5%
Correlation		71.6%	70.5%

Results:

Linear Regression of a Typical Lactoferrin Standard Curve



Range of lactoferrin for CD (+) and CD(-) test subjects

N=197	Range of lactoferrin levels	Percent Elevated (>7.24 μ g/mL)
CD-neg/GDH-neg subjects	0 - 99.8	35.6%
CD-pos/GDH-pos subjects	0.34 - >100	92.2%

CD positive rate for AAD subjects

Total ELISA assessments N = 244	Total specimens	CD-positive: CD toxin (+) and GDH (+)	CD-negative: CD toxin (-) or GDH (-)
Total AAD subjects	244	20.9% (51/244)	79.1% (193/244)

Conclusion:

▪CD ELISA results showed a 20% CD positive rate as expected for the AAD population.

▪The measurement of elevated fecal lactoferrin is useful for indicating intestinal inflammation in cases of CD disease.

▪The detection of intestinal inflammation in subjects suspected of AAD may aid in the optimization of treatment.