Fecal Lactoferrin is a reliable IBD biomarker during pregnancy

- results from the MECONIUM study -

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BACKGROUND AND GOALS

- Monitoring IBD activity during pregnancy is challenging because clinical and laboratory markers may be altered and endoscopy use is limited. Little is known about use of Fecal Lactoferrin (FL), a noninvasive gut biomarker of inflammation in pregnant women.
- We investigated FL concentrations in IBD and control women, participating in the MECONIUM study (Exploring MEChanisms Of disease traNsmission In Utero through the Microbiome), prior to (T0) and during each trimester of pregnancy.

METHODS

- 405 fecal samples [32 at T0; 50 at 1st trimester (T1); 134 at 2nd trimester (T2) and 189 at 3rd trimester (T3)] from 76 IBD women and 175 controls were analyzed using a quantitative enzyme immunoassay (LACTOFERRIN SCAN™, TECHLAB®).
- We performed correlation analyses with clinical scores collected prospectively [physician global assessment (PGA), modified Harvey-Bradshaw index (HBI) for CD and partial Mayo score for UC].
- We compared FL concentrations with those of fecal Calprotectin (analyzed by CalproLab™ ELISA, Norway) in 154 stool samples from T3 in the same women.

RESULTS

- Median FL (µg/ml) in control women was not affected by pregnancy status (1.52 at T1 vs. 1.08 at T0; p=0.08), neither in IBD women (3.58 at T1 vs. 2.64 at T0; p=0.53).

- Median FL was not different between CD and UC (p=0.21), nor according to disease location.

	Crohn's disease (N=38)	Ulcerative colitis (N=38)
Location	Ileal: 15 (39.5%)	Proctitis: 9 (23.7%)
	Colon: 11 (29%)	Left-sided: 14 (36.9%)
	Ileocolonic: 10 (26.3%)	Extensive: 13 (34.2%)
	Perianal: 11 (29%)	Missing: 2 (5.2%)
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Family history of IBD	16 (42%)	8 (21%)
Previous surgery	11 (29%)	1 (2.6%)
Extra-intestinal manifestations:		
Joints (arthritis/sacroiliitis/ankylosing spondylitis)	11 (29%)	3 (7.9%)
Skin (erythema nodosum/pyoderma/psoriasis)	6 (15.8%)	1 (2.6%)
Eyes (uveitis/episcleritis)	0	2 (5.3%)
Liver (primary sclerosing cholangitis)	0	0

Table 1 : Characteristics of 76 IBD women

- FL was significantly higher in IBD women compared to controls at each trimester of pregnancy (Figure 1) and differed by disease activity (active vs. in remission) but showed significance only at T3 (p=0.002).
- At T3, FL significantly correlated with PGA (spearman **r=0.42; p=0.001**), partial Mayo score in UC patients (**r=0.41; p=0.04**) and with HBI in CD patients (**r= 0.36; p=0.05**).
- FL correlated strongly with fecal calprotectin (FC), especially in IBD women (**r=0.78; p<0.0001**, Figure 2) at T3.

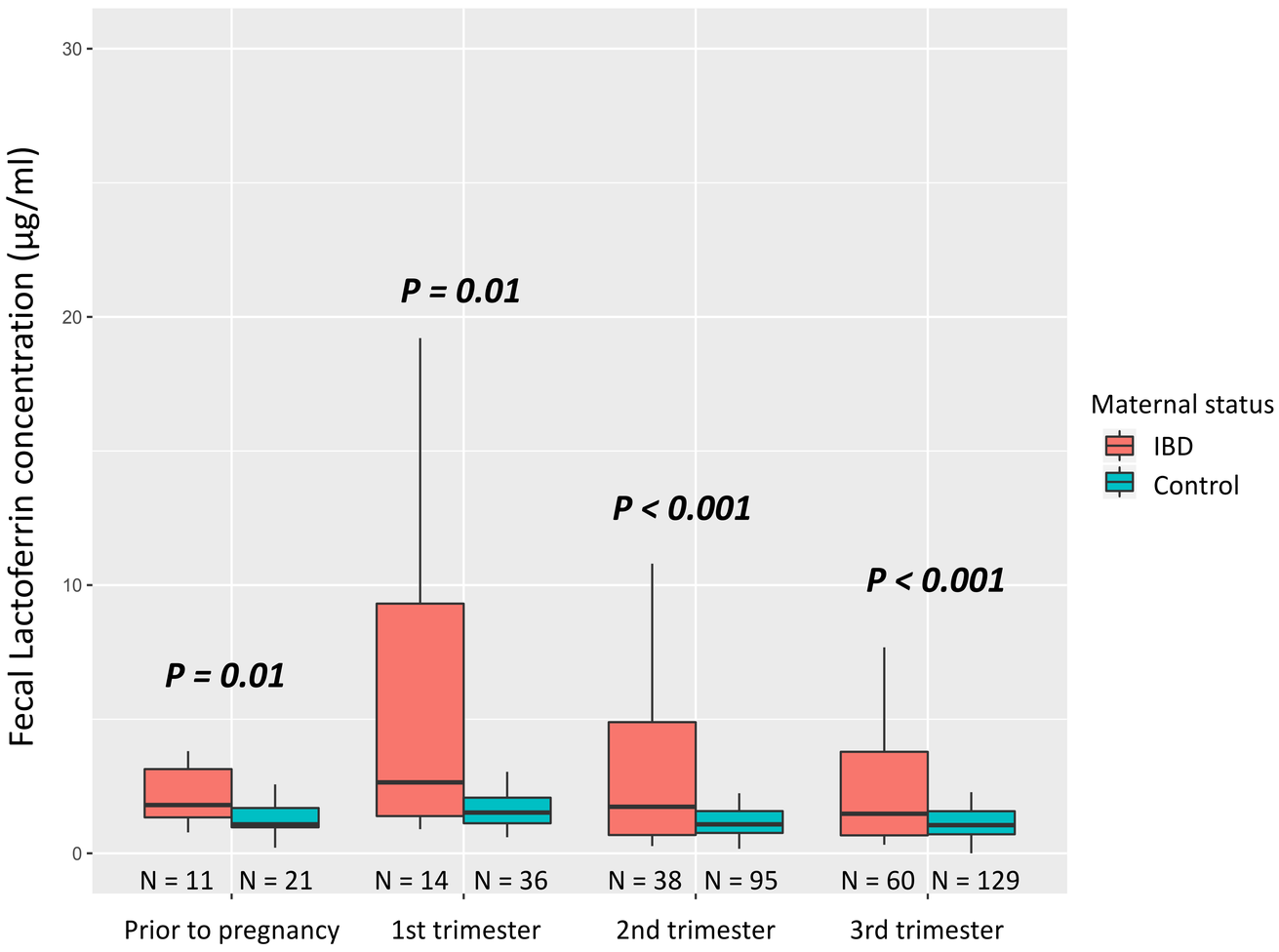

Figure 1: Fecal Lactoferrin concentrations in pregnant women with and without IBD prior to, and during each trimester of pregnancy

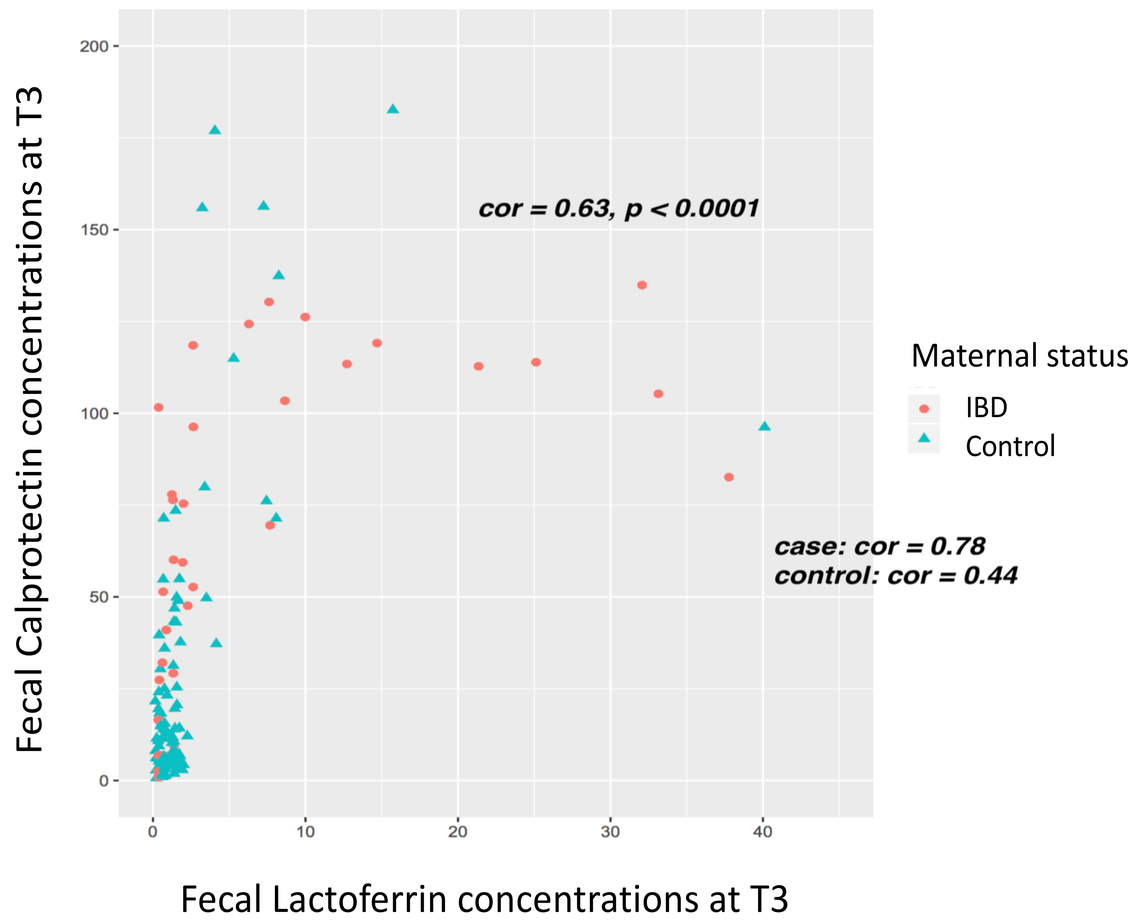

Figure 2: Correlation between fecal Lactoferrin and fecal Calprotectin concentrations at third trimester (T3) in pregnant women with or without IBD

CONCLUSIONS

- FL is not affected by pregnancy regardless of maternal IBD status.
- IBD women had higher FL levels than controls at each trimester of pregnancy.
- FL and FC are reliable, noninvasive biomarkers of gut inflammation to monitor IBD activity during pregnancy.