Sa1757

IMPROVEMENT IN DISEASE ACTIVITY IS ASSOCIATED WITH LESS DISABILITY IN A PROSPECTIVE STUDY OF PEDIATRIC TRANSITION PATIENTS WITH IBD

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Background: The transition from pediatric to adult healthcare in patients with inflammatory bowel disease (IBD,) occurs at an important time in a child's psychosocial development and can impact education, employment, social integration and result in significant disability. A structured transition may limit disability and reduce the impact of disability over time. **Aims:** To assess the change in disability over time in pediatric transition patients, who underwent a structured transition, using the validated Inflammatory Bowel Disease Disability Index (IBD-DI) and assess the responsiveness of this index to change over time. **Methods:** 59 patients (aged 18-25) that had recently transitioned to adult care at the University of Calgary, IBD clinic were identified from a cohort of 200 patients recruited to undertake the IBD-DI. A research coordinator interviewed and administered the IBD-DI with a repeated assessment at 12 months. Demographic and relevant clinical data including measures of disease activity, the partial Mayo Score (PM) or Harvey Bradshaw Index (HBI), were collected from participants as well as from medical chart and database review. Baseline IBD-DI scores were compared using the Mann-Whitney-U test. The Wilcoxon signed rank test with calculation of an effect size and standardized response mean were used to analyse change in IBD-DI scores over time, in groups based on change in disease activity. **Results:**Baseline mean IBD-DI scores for the 59 transition patients was 20.69±13.19 (range 0 to 54.41) and did not differ significantly from 141 adult patients (mean age 41.39) with mean scores of 24.90±14.18 (range 1.47 to 70.59) (p=0.08.) 50 out of 59 participants completed the follow-up assessment at 12 months. Disease activity over time improved in 5 patients, worsened in 5 and were stable in 39 patients. One patient had missing disease index measures and clinical status could not be classified. There was a significant reduction in IBD-DI scores for those with clinical improvement (-17.94, ES >-1, p=0.04) and a significant increase in IBD-DI scores in those that with clinical deterioration (+23.53, ES >1, p=0.04). There was a reduction in the IBD-DI scores over the 12-month time period, in patients with stable disease activity, (-2.68, ES=0.20, p=0.15), however, this was not statistically significant. **Conclusions:**Transition patients have similar disability scores as compared with an adult cohort. There was a significant reduction in IBD-DI scores for those with clinical improvement. The IBD-DI demonstrates significant responsiveness to changes in disease activity over time, a factor that was not evaluated in the initial validation study of the index.

Disease Activity	Improved (n=5)	Stable (n=39)	Worsened (n=5)	Overall* (n=50)
IBD-DI-Baseline	36.647(10.926)	19.042(13.201)	23.824(13.851)	20.625(13.511)
IBD-DI- 12 months	14.706(10.757)	16.365(12.624)	47.353(10.263)	19.382(15.198)
Change in IBD-DI	-17.941(11.737)	-2.677(11.470)	23.530(11.532)	-1.242(14.893)
ES[b]	>-1.0	-0.203	>1.0	-0.060
SRM[c]	13.09	4.64	-40.78	2.15
p value[d]	0.043	0.147	0.042	0.390

*One patient had missing disease index measures and clinical status could not be classified. Data is mean (Standard Deviation.) [a]Wilcoxon signed rank test. [b]Effect size=(Mean2-Mean1)/SD (baseline.) [c]Standardised Response Mean=(Mean2-Mean1)/(SD (12month stable-baseline stable)

Table 1 Mean change in IBD-DI and effect size based on whether disease improved, was stable or worsened.

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THE RELATIONSHIP BETWEEN SERUM BILIRUBIN AND INFLAMMATORY BOWEL DISEASE

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Background: The association among serum total bilirubin (sTB) levels, inflammatory marker levels, and disease activity is not well understood in inflammatory bowel disease (IBD) patients. We investigated the relationship between sTB levels and disease activity in patients with IBD. **Methods:** We conducted a retrospective case-control study. A total of 242 consecutive patients with Crohn's disease (CD) and 211 consecutive patients with ulcerative colitis (UC) were included in our study. We used the Crohn's Disease Activity Index (CDAI) score to assess the disease activity in CD patients and the Mayo score for UC patients. The control group (n=255) comprised clinically healthy subjects from the same geographic region as the IBD study group. The clinical and laboratory parameters of patients with IBD were retrieved from medical records. **Results:** Both CD and UC patients displayed significantly lower sTB levels than controls. There was a significant inverse correlation between sTB levels and C-reactive protein, erythrocyte sedimentation rate, fecal calprotectin, and hemoglobin (Hb) levels in IBD patients. Additionally, there was an inverse correlation between sTB levels and CDAI score in CD patients and Mayo score in UC patients. The sTB and Hb levels were independently associated with the CDAI score. **Conclusions:** sTB levels were lower in IBD patients than in controls and inversely correlated with disease activity in patients with IBD. Lower levels of the antioxidant sTB may reduce the capability of IBD patients to remove reactive oxygen species, leading to further intestinal injury. Reducing oxidative stress may be therapeutic for these patients.

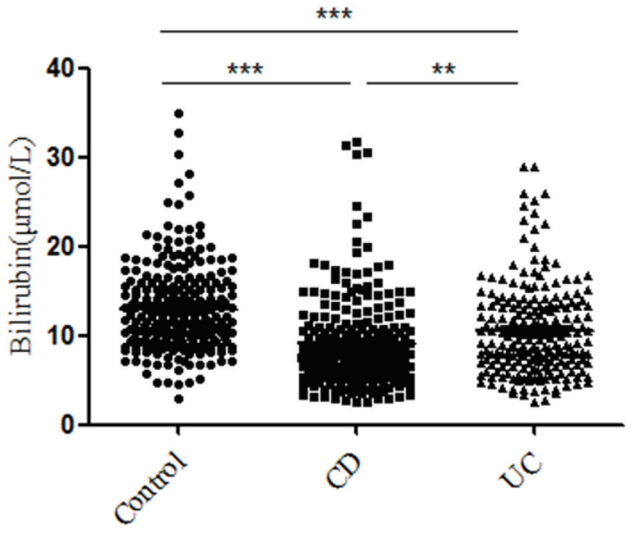

Figure 1. Serum bilirubin levels in CD patients (n=242), UC patients (n=211), and healthy controls (n=255). ** $P < 0.01$; *** $P < 0.001$.

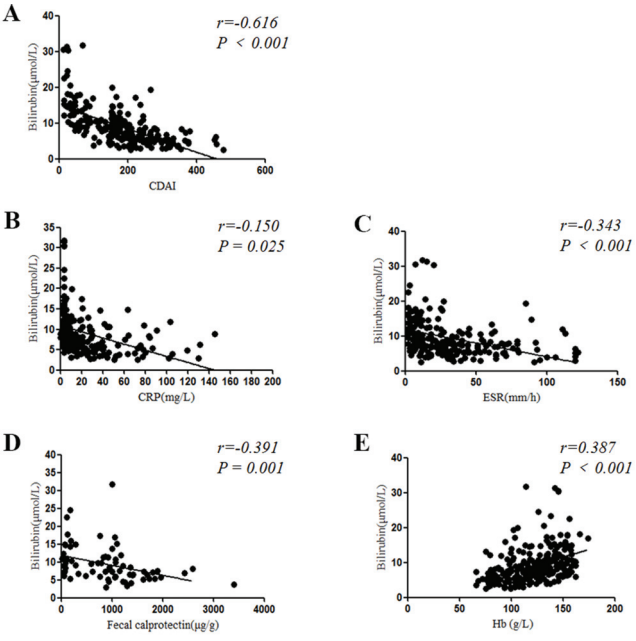

Figure 2. Scatter plot to show the correlation between serum bilirubin level and (A) CDAI score (n=224), (B) CRP level (n=224), (C) ESR (n=213), (D) FC (n=70), and (E) Hb level (n=242) in CD patients. CRP, C-reactive protein; ESR, erythrocyte sedimentation rate; FC, fecal calprotectin; Hb, hemoglobin.

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TRENDS IN TNF-ALPHA INHIBITOR UTILIZATION IN CHILDREN WITH IBD DURING THE LAST 10 YEARS: 2009-2018

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Background: Since the last decade, anti-TNF have been increasingly used in the treatment of inflammatory bowel diseases (IBD), but the pattern of use is still not completely defined, especially in the pediatric population. **Aims**: We aimed to define the pattern of use of these monoclonal antibodies and the associated factors during the past ten years. **Methods:** We conducted a cross-sectional analysis of consecutive children with IBD (Crohn's disease (CD), ulcerative colitis (UC) or unclassified colitis (IBDU)) at CHU Sainte-Justine who had received a treatment with an anti-TNF (Infliximab (IFX) or Adalimumab (ADA)) between January 2009 and October 2018. The primary outcome was the time between IBD diagnosis and the initiation of TNF-alpha inhibitor over the years. The secondary outcomes were the proportion of patients receiving that treatment within three months of diagnosis (early treatment), and the factors associated with early initiation (< 3 months after IBD diagnosis). **Results:** Among the 925 patients diagnosed between January 2009 and October 2018, [(median (IQR) age at diagnosis 13.9 (4.5) years; 49% female; CD (n=622), UC (n=174), IBDU (n=129)], a total of 509 (55.0%) were exposed to anti-TNF. The median (IQR) PCDAI at diagnosis was 32.5 (20.0) for CD, and the median (IQR) PUCAI was 50.0 (35.0) in UC/

IBDU. The median (IQR) age at start of anti-TNF was 14.1(4.5) years. The first exposition to anti-TNF was IFX (n=373), or ADA (n=46). Overall, the median (IQR) interval between IBD diagnosis and the initiation of TNF-alpha inhibitor was 117 (346) days. The median (IQR) interval was 354.0 (940.0) days for patients diagnosed in 2009-2010 and declined to reach 26.0 (101.0) days in 2017-2018. The rate of early treatment (<90 days) was 4,8% in 2009 and gradually increased to reach a maximum of 42.9% in 2018 (Table 1). In the cohort as a whole, the proportion of early treatment with anti-TNF was higher for CD (27.0%) and UC (31.0) than IBDU (6.9%), P<0.0001. A younger age at diagnosis was associated with an earlier start of anti-TNF (Hazard ratio = 1.40 (95% CI = 1.13-1.74); P= 0.0024). (Figure1) **Conclusion:** More than 50% of children are exposed to anti-TNF after a median follow-up of 4.1 years. Over the last few years, anti-TNF, are being used earlier in the course of IBD in children. A long-term follow-up of this cohort would be useful to assess whether the early anti-TNF approach impacts the long-term durability of remission and the long-term probability to remain under these drugs.

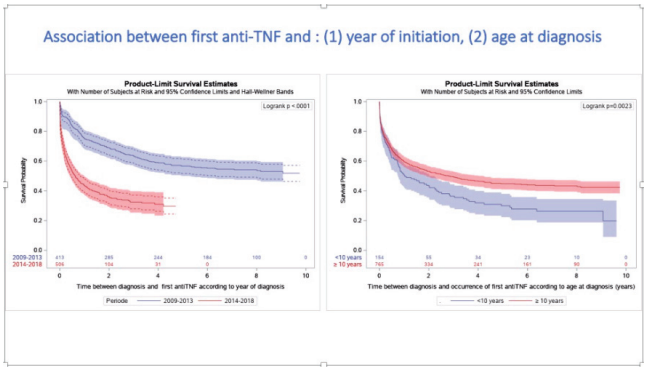

Table 1: Change in Early Administration of Anti-TNF During the Period 2009-2018

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Number (%) treated <90 d	4 (4.8%)	5 (6.4%)	6 (6.2%)	11 (16.2%)	17 (19.8%)	31 (31.0%)	30 (30.3%)	41 (42.7%)	44 (37.0%)	42 (64.6%)
Number (%) treated <180 d	5 (6.0%)	8 (10.3%)	16 (16.5%)	14 (20.6%)	23 (26.7%)	37 (37.0%)	44 (44.4%)	49 (51.0%)	55 (46.2%)	46 (70.8%)
Number annual cases	84	79	97	68	86	100	99	96	119	98

Between January and October 2018, 98 new cases of IBD were identified in our cohort but only 65 have reached the three months follow-up at the time of this abstract submission

Sa1760

RISK FACTORS FOR POST-OPERATIVE CROHN'S DISEASE RECURRENCE. A PROSPECTIVE COHORT STUDY

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Crohn's disease (CD) recurrence after ileo-colonic resection is a frequent event occurring at variable time from surgery. Severity of endoscopic recurrence at 1 year is considered a predictive marker of clinical recurrence within 5 yrs (1). In patients submitted to ileo-colonic resection, Small Intestine Contrast Ultrasonography (SICUS) is an accurate non invasive method for detecting early post-operative lesions and is comparable to the Rutgeerts score (2). Identification of predictors would be useful to plan diagnostic and therapeutic acts in due time and in selected high risk patients to benefit of preventive therapy. **Aim.** To identify predictors of first postoperative recurrence of CD intestinal lesions. **Methods.** This prospective cohort study was performed from January 2002 to September 2018 during the follow up period of consecutive patients submitted to ileo-colon resection for CD. Patients underwent complete clinical assessment including clinical interview, laboratory exams, endoscopic and SICUS examinations within one year from surgery and every 6-12 months thereafter. Recurrence was defined as a Rurtgeerts score ≥i1 (1). Kaplan-Meier failure estimate was used to evaluate the probability of CD lesion recurrence. Demographic (gender, age < 30 vs ≥ 30 yrs, active smoking at time of diagnosis) and clinical characteristics (disease behavior (B) and location (L), perianal disease (PD), corticosteroids at first flare-up, disease duration before surgery < 5 vs ≥5 yrs) of patients were evaluated as potential predictors of lesion recurrence by univariable and multivariable proportional hazards regression analysis. **Results.** During a study period 71 patients were submitted to ileo-colonic resection (females 32, median age 30 yrs, B1 8%, B2 68%, B3 24 %; L1 61%, L3 38%, L2 1%; PD 27%, smoking 55%, corticosteroid at first flare-up 59%, disease duration before surgery 4.8 yrs (IQR 1-10 yrs). Postoperative follow-up period was 7.6 yrs (IQR 4.1-12 yrs). Cumulative postoperative recurrence rates and raw patient data are shown in Fig. 1. The lesion recurrence rate at 1 and 5 yrs was 50% and 75%, respectively. At multivariable analysis (Tab.1), active smoking (HR=1.82; CI 95% 1-3.31, p=0.05), age at diagnosis ≥30 yrs (HR=2.04; CI 95%1.19-3.5, p=0.01) and penetrating behavior (HR=2.92; CI 95%1.02-8.29, p=0.05) were independently associated with post-operative recurrence within 5 years after surgery whereas male gender was marginally associated (HR=1.7; CI 95% 0.97-3, p=0.07) to recurrence. **Conclusions**. Active smoking, age at diagnosis ≥30 yrs, penetrating behavior and, marginally, male gender are associated with a higher risk of CD lesion recurrence after ileo-colon resection. Post-operative CD patients with any of these risk factors should deserve an early and close monitoring during the follow up period. 1.Rutgeerts R et al 1990; 2 Pallotta N et al 2010

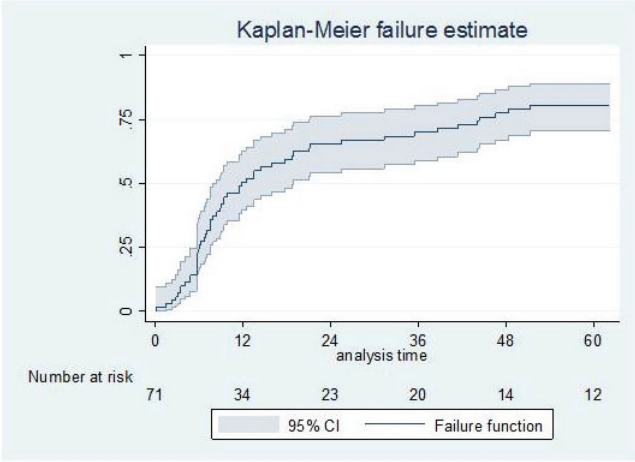

Table 1 Multivariable analysis: predictors of first CD lesions recurrence

	HR	P>z	95%	CI
Gender (male)	1.70	0.07	0.97	3.00
Age ≥30 yrs	2.04	0.01	1.19	3.50
Active smoking at diagnosis	1.82	0.05	1.00	3.31
Disease Behavior				
B2	1.94	0.17	0.75	5.00
B3	2.92	0.05	1.02	8.29

HR: Hazard ratio

Sa1761

CHITINASE 3-LIKE-1 PROTEIN: A NOVEL BIOMARKER OF DISEASE ACTIVITY AND RISK OF RELAPSE IN CHILDREN WITH INFLAMMATORY BOWEL DISEASE

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Background: Endoscopy is the current gold standard for monitoring of disease activity in inflammatory bowel disease (IBD), however this is costly, time consuming and unpleasant for the patient, especially children. Faecal biomarkers provide an opportunity to assess inflammation non-invasively. Chitinase-3like-1 protein (CHI3L1) is upregulated in colonic epithelial cells and macrophages during mucosal inflammation. This study aimed to ascertain the relationships between the novel marker CHI3L1 and standard indicators of active inflammation in children with IBD and to assess its utility in predicting future disease relapse. **Methods:** Children, aged less than 18 years, with new and existing diagnoses of IBD were recruited. Baseline disease characteristics and demographics were recorded. Clinical disease activity, standard serum markers and stool samples were collected at baseline and every three months for the first year and then 6-monthly for up to 3 years. A commercial enzyme-linked immunoassay was utilised to measure CH3L1 in faeces. **Results:** 342 stool samples were collected from 76 children: 65 with CD (85%), 9 UC (12%) and 2 IBDU (3%). Median faecal CHI3L1 levels were elevated in patients with active disease compared to patients in remission (98.7 vs 16.1 ng/g, p<0.0001). Furthermore, significant correlations were found between CHI3L1 levels and disease activity scores or standard serum inflammatory markers **(Table 1).** CH3L1 levels did not differ according to gender or disease type, however, patients with isolated ileal CD had lower levels than patients with colonic or ileocolonic disease (median 14.2, 81.6 and 54.33 ng/g respectively, p<0.001). Children in remission with fecal CH3L1 levels of 42 ug/kg or greater had a 7.6 fold increased risk of relapse over the subsequent six months (HR: 7.6; 3.1 to 18.3 95% CI; p<0.0001, Mantel Haenszel test). **Conclusion:** This study demonstrated clear correlations between faecal CHI3L1 and disease activity in children with IBD, along with other standard indicators of inflammation. This biomarker was able to predict the risk of subsequent relapse. Assessment of CH3L1 levels may have a role in the assessment and monitoring of gut inflammation in children with IBD. Table 1: Correlation (Spearman's rho) between CHI3L1 levels and other disease markers. PCDAI: Pediatric Crohn disease activity index. PUCAI: Pediatric Ulcerative colitis activity index. NS: not significant

	R	p value	N
Age	-0.106	0.05	342
PCDAI	0.304	<0.0001	300
PUCAI	0.418	0.024	29
C REACTIVE PROTEIN	0.2833	<0.0001	226
ERYTHROCYTE SEDIMENTATION RATE	0.3956	<0.0001	196
ALBUMIN	-0.3444	<0.0001	232
HAEMATOCRIT	-0.1086	NS	241
PLATELETS	0.4698	<0.0001	241