Methods: IBD patients at risk for high resource utilization (defined as recent corticosteroid and narcotic use) continuously enrolled in an HDHP or THP from 2009–2016 were identified using the Truven Health MarketScan database. Median annual financial information was calculated. Time trends in office visits, colonoscopies, emergency department (ED) visits, and hospitalizations were evaluated using additive decomposition time series analysis. Financial information and time trends were compared between the two insurance plan groups.

Results: Of 605,862 with a diagnosis of IBD, we identified 13,052 patients at risk for high resource utilization with continuous insurance plan enrollment. The median annual out-of-pocket costs were higher in the HDHP group (n=524) than in the THP group (n=12,458) ($1,920 vs. $1,205, p<0.001), as was the median deductible amount ($1,015 vs $289, p<0.001), without any difference in the median annual total healthcare expenses (Figure 1). Time in insurance period had a greater influence on utilization of colonoscopies, ED visits, and hospitalization in IBD patients enrolled in HDHPs compared to THPs (Figure 2). Colonoscopies peaked in the 4th quarter, ED visits peaked in the 1st quarter, and hospitalizations peaked in the 3rd and 4th quarter.

Conclusion: Among IBD patients at high risk for IBD-related utilization, HDHP enrollment does not change the cost of care, but shifts healthcare costs onto patients. This may be a result of HDHPs incentivizing delays with a potential for both worse disease outcomes and financial toxicity and needs to be further examined using prospective studies.

Figure 1. Median Annual Cost Burden Per Patient According to Deductible Status

Figure 2. Utilization Patterns According to Time in Insurance Period

PO54 WHAT ARE THEY WORRIED ABOUT?: FINDINGS FROM THE IBD DISTRESS SCALE
Jacklyn Stellway Beard, Erynn Beeson, Heather Mackay, Jennifer Paternostro, Mikelle Bassett, Henry Lin, Michael Harris

Introduction: It is intuitive to expect youth with IBD will have higher rates of depression and anxiety than their otherwise healthy peers, and most research bears this notion. However, existing literature of emotional distress has not consistently addressed the differentiation between general depression and anxiety and normative emotional experiences of IBD. Assessment measures often used for youth with IBD align with the DSM criteria; based on symptoms, without considering etiology or context (e.g., chronic disease). The IBD Distress Scale (IDS) was designed to identify distress/worry in response to extraordinary circumstances of having IBD.

Methods: The IDS is a 27-item measure of distress related to IBD symptoms, treatment, and disease burden. The youth self-report was completed by 108 patients ages 12–19, and 101 parents. The IDS measure was administered with general measures of depression (Patient Health Questionnaire, PHQ8) and anxiety (General Anxiety Disorder, GAD7) to youth with IBD attending their routine gastroenterology appointment. Item responses were classified as “not a problem,” “moderate problem,” or “serious problem.” For some analyses, “not a problem” and “moderate problem” were collapsed. Correlations and frequencies were conducted to compare youth and parent responses.

Results: Results identified top “serious problems” rated by youth and parents, separately. The highest rated problem for youth was worries about not being able to eat what others are eating, with 18% reporting this as a serious problem. The second most highly rated “serious problem” by youth was fear of not having bathroom access (15%). For parents, the highest rated “serious problem” was fear of surgery (24%). Parents also rated worrying about next flare, and feeling there’s no way to avoid a flare, as “serious problems,” both with 16% frequency. Pearson correlations for the top problems identified as “serious” by youth and parents revealed significant agreement for socially-oriented worries; e.g., anxiety about patient not being able to eat what others are eating (r=0.33).

Conclusion: The CCF states IBD treatment goals are five-fold: achieve remission; control inflammation; maintain remission; prevent and manage complications; maximize quality of life. Based on research with other diseases, integrating the IDS into current IBD treatment protocols is a logical step for identifying target areas for treatment. Thematically, results revealed youth and parents worry about future-oriented (e.g., worrying about next flare) and socially-oriented issues (e.g., possibility of not having access to a bathroom). The identified themes enlighten current treatment and provide guidance for improved interventions. Future directions should include development and implementation of appropriate interventions specific to the identified serious problems for IBD distress.

Therapeutic Drug Monitoring

22 CHANGE IN FECAL CALPROTECTIN AND LACTOFERRIN PREDICT CLINICAL REMISSION FOLLOWING INDUCTION THERAPY WITH INFliximAB IN PEDIATRIC CROHN’S DISEASE (CD)
Ruben Colman, Brendan Boyle, Joshua Noe, Jeffrey Hyams, Phillip Minar

Background: The fecal biomarkers, calprotectin and lactoferrin are noninvasive biomarkers for mucosal inflammation in IBD. While prior cross-sectional studies showed a correlation between these measures, less is known about the relationship of these measurements with treatment response over time. We aimed to assess the correlation between and utility of fecal calprotectin and lactoferrin on treatment response with infliximab (IFX).

Methods: We analyzed fecal calprotectin (FCP) and lactoferrin (LCT) as part of a multicenter, prospective anti-TNF induction cohort. IFX induction between 5-10mg/kg occurred at 0, 2, and 6 weeks. Stool and serum were collected prior to IFX treatment (baseline) and during follow-up. We evaluated FCP, LCT and trough IFX levels prior to the first and at subsequent infusions up to infusion 4. The primary outcome was the correlations between FCP, LCT, and outcomes at maintenance. Clinical outcomes were assessed by the wPCDAI measured at each infusion. Clinical remission was defined as wPCDAI <12.5. Spearman correlation was used to assess the relationship between FCP and LCT. Predictive outcomes were calculated by receiver operating characteristics (ROC) with Youden-J statistic.

Results: Among 57 CD patients, 54 (95%) had FCP and LCT measured at both baseline and infusion 4. There was a strong correlation between calprotectin and lactoferrin with data at all time points (R=0.82, P<0.0001). A delta score for FCP and LCT was calculated by the proportional change between baseline levels to infusion-4 levels. There was a strong correlation between the FCP delta and LCT delta (R=0.7, P<0.0001), suggesting similarities in quantifiable change over time. At Infusion 4, an FCP <378 μg/g predicted sustained clinical remission between week 14 and 6 months with a sensitivity (sen) of 71% and specificity (spec) of 58% (AUC 0.708; P=0.01). LCT <20.5 μg/g predicted sustained clinical remission between week 14 and 6 months with a sensitivity of 68% and spec of 45% (AUC 0.627; P=0.117). FCP < 639 μg/g at infusion 4, had a sen of 75% and spec of 75% for achieving an infusion 4 trough level ≥ 5μg/ml (AUC 0.758; P=0.005). LCT < 34.2 μg/g had a sen of 69% and spec of 54% (AUC 0.692; P=0.036) for similar trough levels. FCP < 213.6 μg/g at infusion 4, had a sen of 56% and spec of 88% for achieving a infusion 4 trough level > 8μg/ml (AUC 0.744; P=0.007). LCT < 6.0 μg/g had a sen of 44% and spec of 92% (AUC 0.675; P=0.05) for similar trough levels.

Discussion: This study demonstrates that both noninvasive biomarkers can be used to predict sustained clinical remission during IFX therapy. It also provides further evidence for the utilization of fecal calprotectin and lactoferrin as predictors to achieve IFX infusion 4 trough level targets for ≥ 5μg/ml and >8μg/ml.