

CLINICAL RESEARCH ALLIANCE newsletter



**CROHN'S & COLITIS
FOUNDATION OF AMERICA**

Clinical Research Alliance Meeting

Sunday, May 19, 2013
6:30 am - 8:00 am
Hilton Orlando, Ballroom V

- 6:30** Breakfast
6:35 Status of the CRA (H. Herfarth, P. Higgins)

Update of CRA Studies

- 6:45** MERIT-UC (H. Herfarth)
6:55 PUCCINI (B. Sands)
7:05 PIANO (U. Mahadevan)

Presentation of the new CRA study

- 7:15** "Does mucosal healing matter for clinically quiescent UC?" (M. Osterman)

New CRA feature: CRA Interest group

- 7:25** "Cancer of the pouch" (B. Shen)
POUND: Pouch Neoplasia Disorders
7:45 Adjourn

A New Clinical Research Alliance Project: The CRA Interest Group

We want to introduce a new CRA feature, the "CRA Interest Group." As you know, the CCFA currently has very limited funding available for formal CRA studies. In the past 2 years, this was only sufficient to fund pilots for the top 2 projects from our last Request for Applications in 2011; the PUCCINI study led by Bruce Sands, and the soon-to-be-named study led by Mark Osterman, which will pilot in 2013 investigating the importance of mucosal healing in clinically quiescent UC.

There are many interesting projects our members would like to get started. We can not fund them through the CRA, but they might get funding from a CCFA Senior Research Award, the NIH, or other organizations if the investigators can obtain pilot data. We think that the CRA is an ideal platform for generating preliminary data for a grant proposal investigating clinically relevant IBD topics.

In the absence of funding, we envision investigators presenting projects at our twice-yearly meetings and in the CCFA CRA newsletter. The initiator of the project may then be able to attract a small group of interested CRA clinical researchers to help develop this project into a pilot phase. With the initial data from a pilot, the chances for obtaining further funding will significantly increase. The drawback to this approach will be that there will be NO initial funding by the CRA. The CRA will serve only a platform to help build CRA interest groups for projects. Currently this CRA platform is open for anyone to present an idea or project. Bo Shen will be the first investigator presenting a project idea at DDW 2013 investigating pouch neoplasia disorders, for which he looks for interested co-investigators.

If you have project ideas please email either Hans Herfarth (hherf@med.unc.edu) or Peter Higgins (phiggins@med.umich.edu).

Warm regards,

Hans Herfarth and Peter Higgins

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POUND: Pouch Neoplasia Disorders

PI – Bo Shen

Background

ⁱApproximately 30% of the patients with ulcerative colitis (UC) would ultimately require colectomy for medically refractory UC or UC-associated neoplasia. Restorative proctocolectomy with ileal pouch-anal anastomosis (IPAA) has become the surgical treatment of choice for these patients. However, this procedure does not completely abolish the risk for neoplasia of the pouch. Of a denominator of 1,492 pooled cases with ileal pouches in the literature, 28 had dysplasia of the ATZ with a pooled prevalence of 1.9%; and of a denominator of 639 cases with ileal pouches, 27 had dysplasia at the pouch body with a pooled prevalence of 4.2%. ⁱⁱDysplasia and cancer (or neoplasia) can occur, with the majority being located at the rectal cuff or anal transitional zone (ATZ). Review of the literature reveals that the topographic location of pouch adenocarcinoma was at the ATZ in 27 cases (64%), pouch body in 8 (19%), Dysplasia and adenocarcinoma of the pouch has been reported in single cases or small case series and only limited statistical evaluation of risk factors and pouch outcome with univariable analyses was available in the literature until Kariv, et al published a historical cohort study of 3203 patients. ATZ and pouch body in 2 (5%), afferent limb and proximal pouch in 1 (2%), and unspecified locations in 4 (10%). The showed a cumulative incidence for pouch cancer at 5, 10, 15, 20, and 25 years, was 0.2%, 0.4%, 0.8%, 2.4%, and 3.4%, respectively. This landmark study depicts a general picture on risk for pouch dysplasia and cancer, which will shed some light on the natural history of pouch neoplasia and provide background information on indication, need and frequency of surveillance pouch endoscopy.

Also for the first time in the literature, the risk factors

for pouch neoplasia were analyzed with multivariable analysis.ⁱⁱⁱ The study showed that the risk factor associated with pouch neoplasia was the presence pre-colectomy dysplasia or cancer with a hazard ratio of 13.43 (95% confidence interval: 3.96, 45.53) $P < .001$ and 3.62 (95% confidence interval: 1.59, 8.23; $P = .002$), respectively. Previous published case series also suggest that the presence of family history of colon cancer, concurrent primary sclerosing cholangitis, chronic pouch or cuff inflammation may be associated with pouch dysplasia.

Disease course and natural history of pouch neoplasia were poorly defined. On the other hand, patients with pouch cancer appeared to have a poor prognosis, with 1 year survival of 72.7%.ⁱⁱⁱ It intriguing that not all pouch neoplasia follows the chronic inflammation-dysplasia-cancer sequence, which makes pouch endoscopy with biopsy, the current gold standard for surveillance, challenging. In addition, the fact that pouch neoplasia is not common and pouch endoscopy still misses dysplasia leads to controversy on the need and time interval of routine endoscopic surveillance.

Gap of Knowledge

The carcinogenesis of pouch neoplasia is poorly understood. The known risk factors for IBD-associated cancer, such as long duration of disease, extensive inflammation, the presence of concurrent PSC, and family history of colon cancer, were not shown to be associated with pouch neoplasia. This is likely due to type II error from the small sample size of the cases.

The disease course of pouch neoplasia varies, ranging from “regression” of low- and high-grade dysplasia to

CLINICAL RESEARCH ALLIANCE newsletter

POUND: Pouch Neoplasia Disorders

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metastatic cancer devoid of the endoscopic detection of possibly preceded low- or high- grade dysplasia. It is possible that pouch dysplasia or pouch cancer may not share the same risk factors. Finally, the unpredictable behavior of pouch neoplasia, along with inadequacy endoscopy detection (the current gold standard) of has resulted in the lack of standard approach on its surveillance and management.

Hypothesis

The development of pouch neoplasia is associated with foreseeable risk factors, in addition to the known factors of pre-colectomy neoplasia and its varying disease cause mandates different strategies of surveillance of management.

Aims

1. To investigate cumulative incidence/prevalence of pouch neoplasia
2. To assess pre- and post- operative risk factors of pouch neoplasia
3. To evaluate the disease course of pouch neoplasia

Clinical implications

Pouch cancer is a deadly disease. The etiology, pathogenesis, and disease course of pouch neoplasia are poorly understood. The findings of the study will help shed some lights on them, which will help the risk stratification and provision of proper surveillance and management strategies.

Pilot phase

5-10 centers

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References

- ¹Liu Z-X, Kiran RP, Bennett AE, Ni RZ, Shen B. Diagnosis and management of dysplasia and cancer of the ileal pouch in patients with underlying inflammatory bowel disease. *CANCER* 2011;117:3081-92
- ²Kariv R, Remzi FH, Lian L, et al. Preoperative colorectal neoplasia increases risk for pouch neoplasia in patients with restorative proctocolectomy. *Gastroenterology*. 2010;139:806-12.

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MERIT-UC Methotrexate Response In Treatment of UC

PI – Hans Herfarth

BACKGROUND

There are fewer therapeutic options for patients with active ulcerative colitis (UC) compared to patients with active Crohn's disease (CD) and we are facing a persistent unmet need for additional effective and affordable therapies for patients with UC. Methotrexate (MTX) 25 mg once weekly administered subcutaneously (sq) or intramuscularly (im) is an efficient therapy to induce and maintain steroid free remission in patients with CD. Only one small prospective placebo controlled trial investigating the oral administration of 12.5 mg MTX once weekly compared to placebo has been conducted¹. The results did not demonstrate superiority of MTX compared to placebo. We conducted a systematic literature research to identify published clinical efficacy data of MTX in patients with UC and found several retrospective and prospective case series demonstrating clinical efficacy of MTX, when the drug was administered in a comparable dose and similar route (im or sq) as in CD. The conflicting data of the only placebo controlled trial and the published clinical experience may be explained by the fact, that MTX has a known dose response curve as shown in patients with CD or rheumatoid arthritis and also has a significant lower bioavailability if applied orally especially in higher doses such as the one used in CD. We therefore hypothesize that MTX presents an effective therapy for patients with UC if administered in a similar fashion as in CD patients.

RELATED PUBLICATIONS

Herfarth HH, Long MD, Isaacs KL; Methotrexate: Underused and Ignored? *Dig Dis* 2012;30 Suppl 3:112-8.

Herfarth HH, Osterman MT, Isaacs KL, Lewis JD, Sands BE; Efficacy of methotrexate in ulcerative colitis: Failure or promise. *Inflamm Bowel Dis* 2010;16:1421-30.

AIMS of MERIT-UC

MERIT-UC is a NIH funded multi-center prospective placebo controlled study to investigate the safety and efficacy of 25 mg MTX applied subcutaneously once weekly in patients with active UC, who are either steroid dependent or are intolerant or not responding to 5-ASAs or azathioprine/6-mercaptopurine therapy or have no response/ lost response to infliximab prior to the study inclusion.

The aims of the trial are:

1. To evaluate the safety and tolerability of 25 mg MTX applied sq once weekly over a time period of 48 weeks.
2. To evaluate the relapse-free survival of MTX maintenance therapy compared to placebo over a time period of 32 weeks.
3. To evaluate the efficacy of MTX over a time period of 16 weeks to induce steroid free remission.
4. To establish a DNA, plasma and serum library to enable the evaluation of clinical and pharmacogenomic models to predict the response to MTX therapy in patients with UC.

ACTIVE SITES IN MERIT-UC

Currently we have 34 active sites and 1 site preparing to join the consortium (if you want to see who is participating check the CRA website). We are still looking for new sites. If you are or know a site that might be interested, please contact Hans Herfarth, PI of MERIT-UC: hherf@med.unc.edu.

RECRUITMENT

So far we have screened 79 patients for the study and included 45 into the open label induction period. We hope to reach the first aim of the study - an interim analysis of 75 patients completing open label induction period - in the next 9-12 months.

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PUCCINI—Prospective Cohort of Ulcerative Colitis and Crohn’s Disease Patients Undergoing Surgery to Identify Risk Factors for Post-Operative Infection I

PI – Bruce Sands and Ben Cohen

Rationale

Surgery is common in both Crohn’s disease (CD) and ulcerative colitis (UC). There is controversy within the literature as to what the risk factors are for post-operative complications in IBD patients. One of the central questions for which the current literature is heterogeneous is whether use of anti-TNF agents peri-operatively poses a risk for infectious and non-infectious complications. The treatment paradigm for both CD and UC has shifted towards early control of disease with immunosuppressive agents, particularly anti-TNF agents. If anti-TNF agents are found to pose a risk for post-operative complications the management of IBD patients in the peri-operative period would need to be changed.

Hypothesis

The primary hypothesis is that peri-operative anti-TNF exposure is an independent risk factor for 30 day incidence of post-operative infection in intra-abdominal surgery for CD and UC

Aims

Aim 1: Determine whether exposure to anti-TNF agents is an independent risk factor for post-operative infection in intra-abdominal surgery for CD and UC

- a. Explore use of peri-operative anti-TNF drug levels as a measure of risk for post-operative infection

Aim 2: Determine whether exposure to anti-TNF agents is an independent risk factor for important non-infectious post-operative outcomes in intra-abdominal surgery for CD and UC such as ileus/small bowel obstruction, thromboembolic event, reoperation, and mortality

- a. Explore use of peri-operative anti-TNF drug levels as a measure of risk for non-infectious post-operative outcomes

Aim 3: To determine other risk factors associated with

post-operative infection in IBD patients undergoing intra-abdominal surgery and explore analytic morphometric measurements as novel predictors of post-operative outcomes.

Status Update

- The pilot study has been conducted at Cleveland Clinic Foundation, Massachusetts General Hospital, the Mount Sinai Hospital, University of Michigan Hospital, and University of North Carolina Hospitals over the last year. Approximately 150 patients have been enrolled.
- Throughout the pilot, study procedures and electronic case report forms have been modified during bi-weekly conference calls. Significant new additions to the study procedures include measurement of peri-operative anti-TNF levels and morphometric analysis of peri-operative cross-sectional imaging by the University of Michigan.
- Based on the successful pilot study, an application for a senior research award from the CCFA was submitted in January 2013.
- In addition to the pilot sites, seventeen additional centers have committed to participate in the expanded study once funding is obtained. These centers include: Boston University Medical Center, Brigham and Women’s Hospital, Cedars-Sinai Hospital, Dartmouth-Hitchcock Medical Center, Lenox Hill Hospital, Mayo Clinic Arizona, Mayo Clinic Rochester, Penn State Hershey, University of Chicago, University of California San Francisco, University Hospitals Case Medical Center, University of Colorado, University of Florida, University of Maryland, University of Pennsylvania, University of Pittsburgh, and Wake Forest University.
- Over 1000 patients will be enrolled in the final study.

CLINICAL RESEARCH ALLIANCE newsletter

PIANO: Pregnancy in Inflammatory Bowel Disease And Neonatal Outcomes

PI – Uma Mahadevan

Currently enrollment is ongoing but limited to pregnant women on biologic +/- immunomodulator therapy. There are 1226 patients in the registry of which 397 have rolled over into the 4 year extension (once the infant has reached 1 year of age) and 934 remain active.

Analysis of 896 of 1044 women in PIANO who had delivered as of April 25, 2012 was recently presented at Digestive Diseases Week. Patients were divided into 4 groups based on medication use during pregnancy and the 3 months prior to the last menstrual period: Unexposed (n= 326), AZA/6MP (n=204), Biologics (n= 291) and combination biologic and AZA/6MP (n=75). Overall, there was a 4% rate of SAB; 11% rate of PTB, 7% rate of LBW, 5.9% rate of congenital anomalies and a 44% rate of cesarean section. Additionally there was a 12% rate of NICU stay for the infant. When assessed by drug exposure, there was no increase in congenital anomalies, LBW, and NICU stay by drug exposure. However, there was a significant increase in complications in the combination therapy group. Overall, there was an increase in preterm birth [RR 1.83 (1.01-3.31)] among all IBD patients on combination therapy. When looked at by disease type, patients with CD did not have an increase in any complication by drug exposure. However, UC patients had an increase in spontaneous abortions in the biologic group and in the combination therapy group had an increase in any complication, PTB, LBW, and NICU stays. While these outcomes were controlled for disease activity in the analysis, UC patients did have statistically more active disease than patients with CD overall ($p < 0.01$). Unmeasured variables for disease activity such as malnutrition, anemia and the continuation of therapy in the patient with minimal response to avoid surgery during pregnancy may be playing a role in these increased adverse outcomes in the UC patient.

In the first year of life, there was no difference in height and weight or achievement of developmental mile-

stones at months 4, 9, and 12 by drug exposure when adjusted for maternal age and disease activity. There was also no increase in neonatal infections. However, when biologics were removed one at a time from the analysis, there was a significant increase in infections at one year in the combination therapy group relative to the unexposed group when certolizumab was removed from the biologic group [RR 1.35 (1.01-1.80)]. This was not seen when infliximab or adalimumab were removed. Given the known lack of placental transfer for certolizumab compared to infliximab and adalimumab, this suggests a role for the biologic agent in combination with the immunomodulator in these infant infections. Reassuringly, the majority of the infections were minor, such as otitis media and upper respiratory infections. 75% of women reported breastfeeding. Unexposed women were more likely to breastfeed (85%) than exposed (AZA: 65%, Biologics: 71%, Combination 61%) $p < .0001$. When controlled for drug exposure, breastfeeding was not associated with infection risk or height and weight deficiencies. A SRA has been submitted to CCFA for funding starting June 2013.

Publications

Placental Transfer of Anti-Tumor Necrosis Factor Agents in Pregnant Patients With Inflammatory Bowel Disease. Mahadevan U, Wolf DC, Dubinsky M, Cortot A, Lee SD, Siegel CA, Ullman T, Glover S, Valentine JF, Rubin DT, Miller J, Abreu MT. *Clin Gastroenterol Hepatol.* 2013 Mar;11(3):286-92.

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PIANO: Presentations at DDW2013

Oral Presentation: Prospective Evaluation of Adherence to Health-care Maintenance in Women with Inflammatory Bowel Disease Sheibani, Sarah; Martin, Chris; Bloomfeld, Richard; Isaacs, Kim; Saha, Sumona; Mahadevan, Uma

Poster Presentation: Is Asacol Use Associated with Congenital Anomalies? Results from a Nationwide Prospective Pregnancy Registry Aparajita Singh, Christopher Martin, Sunanda Kane, Marla Dubinsky, Deanna Nguyen, Robert P. McCabe, David T. Rubin, Ellen J. Scherl, Uma Mahadevan

Does Mucosal Healing Matter for Clinically Quiescent Ulcerative Colitis?

PI - Mark Osterman

BACKGROUND

There is increasing evidence that patients with ulcerative colitis (UC) have better long-term outcomes, including lower rates of disease flares and also lower rates of hospitalization and surgery, if their gut mucosa is healed. However, no study so far has examined whether treating with medication to the point of mucosal healing irrespective of clinical symptoms is an effective or warranted strategy. The purpose of the proposed study is to determine the proportion of UC patients in clinical remission with active mucosal disease on endoscopy and on histology during routine surveillance colonoscopy. We plan to determine whether the endoscopic activity correlates with biopsy findings. We will then use this information to calculate the risk of clinical disease flare in UC patients depending on their level of endoscopic and histological disease activity. The overall goal is to use all of the above information to plan a large randomized trial in which patients with clinically inactive UC will either remain on 5-ASA medications or step-up to immunosuppressives to determine whether treating with medication to the point of mucosal healing leads to improved clinical outcomes in the long run. We strongly suspect that achieving mucosal healing will lead to better health and quality of life in our UC patients.

Plan: After finalization of the study protocol the study will be piloted at 7-10 centers to iron out protocol issues. Once funding for a definite study can be secured the study will be offered to all interested CRA centers.

RELATED PUBLICATIONS

Osterman MT. Mucosal healing in inflammatory bowel disease: a review. *Journal of Clinical Gastroenterology* 2013;47:212-21.

CLINICAL RESEARCH ALLIANCE newsletter

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