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### Infliximab Trough Levels at Induction to Predict Treatment Failure During Maintenance

For ReachMD, this is Audio Abstracts. I'm Dr. Kelly Sandberg, pediatric gastroenterologist and Chief Medical Quality Improvement Officer at Dayton Children's Hospital and a member of Crohn's & Colitis Foundation's Rising Educators, Academics, and Clinicians Helping IBD group, or REACH-IBD. I will be reviewing an article recently published in the *Inflammatory Bowel Disease* journal titled "Infliximab Trough Levels at Induction to Predict Treatment Failure During Maintenance."

Anti-TNF alpha therapy is a frequently used treatment in pediatric and adult inflammatory bowel disease. Unfortunately, some patients lose response to infliximab over time, referred to as loss-of-response (LOR). To combat LOR, The TAXIT and TAILOR-IX trials were designed to test proactive approaches of therapeutic concentration monitoring. Although these studies did not achieve their respective primary endpoints, defined as steroid free clinical remission, these strategies were nonetheless associated with lower drug costs. These and other trials were designed to optimize infliximab treatments in patients who were receiving maintenance therapy. Very few data are available on infliximab levels during induction therapy and their impact on long-term response.

The authors of this study performed a longitudinal cohort study of IBD patients at a single European center, examining outcomes of 269 patients treated with infliximab. Three outcomes were characterized and analyzed: the *LOR-switched group* included 28 patients requiring switch to another treatment because of loss of response. The *LOR-optimized group* included 60 patients who experienced loss of response but responded to infliximab optimization. The *long-term responders group* included 64 patients who were treated with infliximab without requiring optimization. A fourth group, the stop group, was also analyzed, composed of 58 patients who stopped treatment because of deep remission, defined by no symptoms, normal CRP level, and partial or complete mucosal healing at endoscopy. Samples were collected prospectively from 2007-2015 with a retrospective analysis of clinical data. During follow-up, patients were defined according to treatment outcome.

Results of this study show that at week 6, median infliximab levels were lower in *LOR-switched group*, as compared to patients in the *long-term responders group* and *LOR-optimized group*. At week 2, median infliximab levels were lower in the *LOR switched group* as compared with the *long-term responders*, but was not significantly different for the *LOR optimized group*. In the *LOR switched group*, median infliximab levels at induction (weeks 2 and 6) were significantly lower when patients had been previously exposed to antitumor necrosis factor compared with naive patients. Detection of antibodies to infliximab occurred in similar rates to other published studies.

This study characterizes infliximab levels obtained during induction at 6 weeks as 'trough' levels, that is, between the 2<sup>nd</sup> and 3<sup>rd</sup> induction dose, which may not conform to standard view. Likewise, this study does not compare outcomes between 6-week and 14-week-interval infliximab levels (i.e. between the 3<sup>rd</sup> induction dose and 1<sup>st</sup> maintenance dose, as is common in other studies). Regardless of how the term 'trough' is used, this study suggests that patients who do not respond to any optimization strategy have lower infliximab levels during induction at week 6, suggesting that Infliximab levels measured early on in induction could predict treatment failures to infliximab during maintenance. This study also confirms that optimization helps decrease the presence of antibodies to infliximab.

If you are interested in this topic or others on Crohn's disease or ulcerative colitis, the Inflammatory Bowel Diseases Journal brings the most current information in clinical and basic sciences to physicians caring for patients with IBD, and investigators performing research in IBD and related fields. Each issue contains cutting-edge original basic science and clinical articles on diagnosis, treatment, and management of Crohn's disease and ulcerative colitis from clinicians and researchers around the world. The IBD Journal is the official Journal of the Crohn's & Colitis Foundation. For more information on the Foundation, please visit [www.crohnscolitisfoundation.org](http://www.crohnscolitisfoundation.org)

This article is available with free access through the journal online at [journals.lww.com/ibdjournal](https://journals.lww.com/ibdjournal). The contributing author of this Audio Abstract is Dr. Kunjal Gandhi, gastroenterologist at the Nemours Al Dupont Hospital For Children and a member of Crohn's & Colitis Foundation's Rising Educators, Academics, and Clinicians Helping IBD group, or REACH-IBD

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