

ADVANCES IN IBD

Current Developments in the Treatment of Inflammatory Bowel Disease

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Using a Clinical Decision Support Tool for Inflammatory Bowel Disease



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G&H Why was there a need to develop a clinical decision support tool for inflammatory bowel disease?

PD All of the US Food and Drug Administration registration trials for inflammatory bowel disease (IBD) drugs, the phase 3 trials that led to approval of the drugs, have reported efficacy rates of only approximately 30%; in other words, only approximately 1 in 3 patients in these trials benefited from these drugs. Thus, when these drugs come on the market, it is difficult for providers to understand which of these drugs is most appropriate for an individual patient. As a result, there is always a delay in the uptake of newer drugs because providers tend not to feel familiar or confident with them and they prescribe drugs with which they have more experience or have had fewer complications in the past. Therefore, there is a good deal of variability in how these drugs are used, in large part because of uncertainty from providers in confidently expressing to a patient that he or she would benefit from the drug.

G&H What clinical decision support tools are currently available for patients with IBD?

PD To help providers choose more efficiently and communicate that choice to patients directly, my colleagues and I built a web-based tool that is available at www.CDSTforIBD.com (referred to as the IBD Clinical Decision Support Tool). To ensure generalizability of the information, we accessed patient level data from phase

3 clinical trial programs for biologic therapies. We built individual prediction models for approved biologic drugs and then went through the process of validating the models and making sure that they predicted response to those drugs in routine clinical practice. All of those models are currently available on the aforementioned web page. This clinical decision support tool is endorsed by the American Gastroenterological Association, and providers have an opportunity to obtain Continuing Medical Education (CME) credits from the activities. The tool has been demonstrated by our group and others across the world to help differentiate probability of response for one biologic vs another, leading to enhanced choice and an ability to define whether an individual patient would benefit from a specific therapy.

As far as I am aware, this is currently the only tool that helps providers decide among biologic and small-molecule therapies for patients with moderate to severe IBD. There are clinical guideline companions known as decision support tools, but they are essentially algorithms for providers to consider. Those tools typically only indicate which drugs providers should choose among and broader considerations when making this choice; those tools do not provide actual decision support for which drug might be most appropriate for an individual patient.

G&H Which factors does the IBD Clinical Decision Support Tool take into account?

PD For an unbiased approach in choosing factors, we allowed statistical software to indicate which factors were

most important instead of introducing any clinical or personal biases we might have. The factors that ended up being chosen were surprisingly very consistent with the factors that providers use clinically (eg, the inflammatory markers of albumin and C-reactive protein, the severity or extensiveness of the disease, and the treatments that have been used in the past). Thus, the prediction modeling that was performed used the clinical factors that providers commonly use to discriminate among drugs. Although albumin is important in terms of predicting response to all of the drugs, it is more important for predicting response to one group of drugs vs another, and small nuances in the scoring or relative weighting of albumin in the models can help differentiate which drug might be better than another for an individual patient.

G&H How was this tool validated?

PD A large consortium across North America was established in which approximately 20 academic centers pooled clinical information of patients treated in routine practice with these drugs. In applying the tool, data sets revealed that the tool was accurate for predicting treatment outcomes in a routine practice cohort in patients who would traditionally not qualify for clinical trials.

G&H What were the main challenges associated with developing and validating this tool?

PD There were many challenges. This was the first time investigators were able to access such granular data from phase 3 registration trials, which are typically maintained and owned by industry sponsors. Bringing together a large academic collaboration like this in the United States toward a common goal also created challenges along the way. However, we were eventually able to overcome these challenges because both industry and academic partners felt that there was a gap that needed to be addressed.

G&H When is this clinical decision support tool most useful and accurate to use?

PD It is most useful and accurate in the outpatient setting for patients who have moderate to severe IBD when the provider is thinking of starting a biologic or small molecule therapy. The tool was designed for that patient population. These patients are at high risk for having a complication in the near future, so it is important to choose an effective drug early on to minimize that risk.

G&H In which other patient populations can this tool be used?

PD The tool is generalizable to the entire spectrum of the course of IBD. For example, it is applicable regardless of whether IBD is diagnosed early or late, patients have been treated before or not, and the duration of the disease.

Currently, the tool can be used for all approved IBD drugs, with the exception of the most recently approved therapies such as risankizumab (Skyrizi, AbbVie) or upadacitinib (Rinvoq, AbbVie). That is in large part because we have not had a chance to update the prediction models yet. There are plans to update the clinical decision support tool as all new IBD drugs come on the market and to continue to make the tool generalizable to routine practice.

G&H How can this clinical decision support tool be used in clinical practice to help guide treatment initiation and timing for patients with IBD?

PD The online web tool has been used by more than 8000 providers this year alone. It is being used the most either immediately prior to a clinic visit or during a clinic visit in which the provider pulls up the tool, puts in all of the information, and determines the relative probability of the patient's disease responding to each drug. Some

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providers have told me that they show their patients visual information from the tool and use that information as a starting point to discuss which therapy is most appropriate with patients. We are working on trying to integrate this information into electronic medical records to make it more readily available and create an easier interface.

In addition, I have heard of some providers using the tool to obtain insurance approval or to deal with denials from insurance payers to show that a particular drug will work better for an individual patient than the drug being suggested by the payer.

G&H What other user data are available regarding this tool?

PD The IBD Clinical Decision Support Tool includes several standard knowledge IBD treatment questions before and after its use for a subset of users who agree to take an additional 3 to 5 minutes of time to answer questions. Strikingly, there was an increase of more than 200% in provider mastery, which was defined as choosing the right drug and having the confidence to know that the answer was correct.

G&H What are the biggest limitations of this clinical decision support tool thus far?

PD It is not 100% accurate, so it will not give providers the correct answer every single time. It has not integrated factors such as genetics or immune cell sequencing, which likely would help it function better and provide mechanistic insights. We are actively working on those 2 issues and thinking how to further optimize the tool.

G&H How receptive have providers been to trying and using the tool?

PD Community-based providers have been very supportive and have integrated the tool widely. Academic institutions have also begun to integrate it. There was initially some delay in uptake, likely because providers were not sure if the tool would be validated. I have been surprised that there has been a good deal of international use as well. Groups in Europe are validating the tool and looking to integrate it into their care to help them decide how to position drugs relative to others.

It should also be noted that because the tool involves industry collaboration, some people have been skeptical and reluctant to use it, assuming that there is a financial gain to be made; however, there is not. This is a free tool

that is an educational, CME activity and does not generate profit.

G&H Do you foresee this tool ultimately becoming the main reason for selecting an IBD therapy?

PD I think the tool will at least become the focal point for beginning a discussion on which therapies are appropriate and presenting this information to patients so that they can make an informed decision. In the end, I think it is still necessary to personalize the decision-making process, which should be shared between the patient and the provider.

G&H What are the next steps in research or development in this area?

PD One step is to incorporate the newest drugs that have come on the market. Another step is to identify translational biomarkers that can be integrated into the tool.

Disclosures

Dr Dulai has done consulting for Takeda, Pfizer, AbbVie, Janssen, Gilead, BMS, Abivax, Addiso, GSK, and Lilly.

Suggested Reading

Dulai PS, Amior A, Peyrin-Biroulet L, et al; GETAID OBSERV-IBD, VICTORY Cohorts Collaboration. A clinical decision support tool may help to optimise vedolizumab therapy in Crohn's disease. *Aliment Pharmacol Ther.* 2020;51(5):553-564.

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