SESSION 3
PROACTIVE/REACTIVE TDM

Case-based breakout Workshop

April is a 24-year-old female working as a laboratory technician. She has an eight-year history of left-sided ulcerative colitis, which had been previously controlled with 4.8 g of mesalamine. After a disease flare two years ago, she required a weaning course of oral corticosteroids. She had another flare six months later, but declined a further trial of corticosteroids due to concerns of weight gain and mood changes. She was induced with vedolizumab one year ago and subsequently maintained on 300 mg every eight weeks.

For the last four months she has had urgency and bloody diarrhea with four to six bowel movements (BMs) per day, abdominal cramps, and a sensation of incomplete evacuation.

Her investigations revealed:

- WBC: 8.0 x 10^9/L
- Hb: 102 g/L
- CRP: 14 mg/L
- Alb: 36 g/L
- Fecal calprotectin: 2100 mcg/g
- Stool C and S negative
- *C. difficile* negative
- Mayo 2 pancolitis on colonoscopy

Decision Node 1

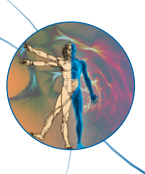
- What management strategies would you consider at this time?
- Would you dose optimize the vedolizumab and how?
- Do you check a vedolizumab level and why?

You decide to check a vedolizumab level which returns at 15.5 mcg/mL. After discussion with the patient you decide to dose escalate to every four weeks for four months, then re-evaluate accordingly. Unfortunately, her symptoms progress and she requests to change therapies.

Decision Node 2

- Do you recheck the vedolizumab level and why?
- What therapeutic options can she consider next?

April requests to switch to ustekinumab as she would like a medication she can self-inject. Despite your counselling regarding the relative safety of all biologic agents, she is unduly worried about the risks of anti-TNF agents. You arrange an IV induction then



maintenance with subcutaneous dosing every eight weeks and she has an initial clinical response. Before her third subcutaneous dose, she requests that you check her 'drug level'. Fortunately, she has maintained clinical remission.

Decision Node 3

- Do you check the drug level at her request?
- Do you routinely perform proactive therapeutic drug monitoring (TDM) after initiating ustekinumab?
- Do you routinely perform proactive TDM after initiating other biologic therapies?

You decline April's request to check her drug level and she enjoys excellent quality of life and continues to work at the laboratory. Unfortunately, at her 18-month follow-up visit she begins experiencing a relapse, with a recurrence of four to six bloody BMs/day, CRP 15 mg/L and fecal calprotectin 1800 mcg/g.

Decision Node 4

- Since April now has symptoms, do you request a reactive TDM? What range do you aim for?
- Does your target range for TDM (for any biologic agent) vary depending on whether you request it proactively or reactively?

A serum trough level of ustekinumab returns at 1.4 mcg/mL. She declines dose optimization, stating that higher doses will increase her risk of COVID as the pandemic is now in full force. You counsel her at length about the need for ongoing disease control but are informed by your patient support coordinator six months later that April has not picked up any injections since you last saw her. You try calling her and send out a fecal calprotectin kit, which returns at >5400 mcg/g. Two weeks later, she attends the emergency department with 10 bloody BMs/day, three nocturnal BMs/day, CRP of 22 mg/L and albumin of 26 g/L.

Decision Node 5

- What do you do next?
- If you decide to start infliximab in hospital, how do you dose it?
- Will you, and, when will you check her infliximab drug levels?

Fortunately, after receiving intravenous steroids and 10 mg/kg of infliximab at day 0 and 7, April does well, and is discharged on oral prednisone and has a plan for outpatient infliximab infusions.

Select Recent References

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