Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

COVID-19 and Future Implications for Gastroenterology Trainees

Dear Editors:

Resilience arises as a natural response to any challenge. The coronavirus disease 2019 (COVID-19) pandemic has unexpectedly reshaped the priorities and responsibilities of everyone, including health care providers. Gastroenterology trainees are no exception and have inevitably faced compromise in their educational progress. In their recent communication, Keswani et al[1] describe in detail these challenges from clinical, endoscopic, and knowledge perspectives, while suggesting innovative solutions to address these challenges and slowly return to a new normal. In this letter, we would like to highlight additional aspects that could prove valuable to efficiently use the COVID-19 pandemic as an opportunity for improvement in gastroenterology education.

Firstly, endoscopic training can be enhanced by the creation of a competency-based simulation educational model for training in esophagogastroduodenoscopy and colonoscopy. Endoscopy training has traditionally taken place in the endoscopy unit, where fellows practice with real patients under the guidance of an experienced mentor.[2] The surge of COVID-19 has nullified endoscopy for a good proportion of trainees, jeopardizing the procedural experience.

Volume does not necessarily translate into accurate procedural technique; hence, high-quality self-assessment and feedback are essential elements to guarantee a proper endoscopic training experience.[3] The current curriculum could be modified to rely on simulation and objective measures of competence in specific endoscopic skills, such as recognition of abnormalities, identification of pathology, and development of treatment decisions.[3,4] In addition, given its objective nature, simulation-based assessments could serve for creation of educational metric tools that would allow tailoring of the endoscopic training to focus on specific areas that might require improvement (ie, cecal intubation, hemostatis, polyp detection, and looping). Currently, fewer than half of the gastroenterology training programs use simulation and only 15% require its use before introduction of clinical cases.[5] An assessment of the investment in simulation and its benefits should be done not only to face the COVID-19 crisis, but also to move forward in education with tools that emphasize high-quality personalized endoscopic training.

Additional concerns during this crisis arise in terms of clinical knowledge maintenance and gain. The authors mention the use of e-learning through the implementation of webinars, which are mostly led by gastroenterology societies.[1] Online learning can be further enhanced through virtual group discussions involving trainees of multiple institutions around the globe, where an allocated team mentor leads a case-based debate with literature support. To maintain enthusiasm, activities like Jeopardy and quizzes could be implemented. Credit can be gained for presentation, structure, and delivery. Virtual group discussion could also be designed to satisfy research-based journal clubs. These discussions could serve for brainstorming of research projects and commencement of research ethics design and grant applications. The continued use of virtual platforms to connect in an academic setting will allow for participation of a diverse range of trainees locally and internationally to promote the generation of creative ideas.

Further potential improvements in communication could result through the adoption of virtual multidisciplinary team meetings. Most institutions have cancelled elective procedures, resulting in a need for thoughtful selection of interventions that are not necessarily emergencies, but do impact long-term outcomes, especially in chronic conditions prone to acute exacerbations like inflammatory bowel disease or gastrointestinal malignancies. Proper allocation of resources and timely interventions mandate fluid communication between providers of different specialties, namely surgery, oncology, pathology, and radiology, in the form of multidisciplinary boards.[6] At the moment, multidisciplinary boards should take place virtually to respect the social distancing measures. After the COVID-19 pandemic, the virtual multidisciplinary team board can be translated into an opportunity for institutions with different human resources to share their input on difficult cases. In this way, institutions with supra-specialized physicians can provide their opinion on difficult cases, while exposing all gastroenterology trainees to an integral experience both in depth and breadth of cases. This would serve as a method to maintain clinical knowledge, while gaining experience about how to prioritize resources in an unconventional setting.

Often, times of crisis call for immediate action and innovative solutions that can have long-lasting positive effects. Here, we highlighted some of the solutions to challenges raised by Keswani et al[1] and their potential role for changes in gastroenterology training.

LADY KATHERINE MEJÍA PÉREZ
Department of Internal Medicine
Cleveland Clinic
Cleveland, OH

NEEL SHARMA
Institute of Immunology and Immunotherapy *and*
Institute of Translational Medicine
University of Birmingham
Birmingham, UK

References

1. Keswani RN. Gastroenterology 2020;159:26–29.
2. Dunkin BJ. Semin Laparosc Surg 2003;10:29–35.
3. Waschke KA, et al. Gastrointest Endosc 2019;90:27–34.
4. Walsh CM, et al. Gastrointest Endosc 2019;90:13–26.
5. Jirapinyo P, et al. Surg Endosc 2015;29:1913–1919.

6. Sethi A, et al. Clin Gastroenterol Hepatol 2020;18:1673–1681.

Conflict of interest statement
The authors disclose no conflicts.

Most current article

https://doi.org/10.1053/j.gastro.2020.05.089

Lymphatic-dependent Transport of Chylomicrons in Inflammatory Bowel Disease

Dear Editors,

Intestinal lymphatic obstruction, remodeling, expansion, and impaired contraction, which characterize inflammatory bowel diseases including Crohn's disease, may impair lymphatic pumping and lead to lymphangiogenesis and immune dysregulation, supporting lymphangitis as a cause or consequence of Crohn's disease. We read with interest the article by Huang et al.[1] regarding postprandial chylomicron output and transport through intestinal lymphatics in patients with Crohn's disease. In this study, the authors investigated whether the lymphatic-dependent transport of chylomicrons was decreased in Crohn's disease, and the results indicated that chylomicron transport was not impaired in patients with active Crohn's disease of the ileum.

To our knowledge, this is the first study that evaluated the lymphatic-dependent transport of chylomicrons in patients with Crohn's disease. Although lymphangiogenesis and vessel dilation and a decrease in drainage have been observed during inflammation and carcinomas,[2] direct evidence of lymphatic drainage defects in patients with Crohn's disease is lacking. This study was well designed and conducted; however, there are several limitations from both clinical and basic points of view on which we wish to add our consideration. First, as stated in the paper, chylomicron absorption typically occurs in the duodenum and jejunum, so patients with upper gastrointestinal lesions such as duodenal and/or jejunal Crohn's disease instead of ileal Crohn's disease would be better for evaluating the lymphatic-dependent transport of chylomicrons. Therefore, to obtain the conclusions in this study, patients with duodenal and/or jejunal Crohn's disease may need to be included. Although enterocyte membrane status can shift absorption to distal parts of the intestine in animal studies, fatty acid reaching the ileum is a result of reduced fat absorption in the duodenum and jejunum,[3] and in TNBS-induced animal colitis, lymph flow from the ileum is rapidly interrupted by insult to the colon.[4] Alternatively, nasojejunal feeding can be performed in order to study lymphatic-dependent transport in patients with ileal Crohn's disease. Feeding with nasojejunal tubes, to a certain extent, can prevent chylomicron absorption in the duodenum and jejunum. Although this is difficult in clinical practice, especially if enrolling healthy controls, studying non-IBD patients who require enteral nutrition with nasojejunal tubes may be a more feasible alternative. Second, in this study, we cannot exclude the possibility that comparing postprandial chylomicron output and transport in patients with Crohn's disease resulted from compensation of intestinal lymphatics. Indeed, lymphangiogenesis and vessel dilation, which are thought to increase the delivery of lymph to the draining lymph node, have been found in patients with Crohn's disease, and a decrease in lymphatic vessel density is associated with high a risk of postoperative recurrence.[5] Inhibition of lymphangiogenesis and lymphatic drainage via lymphangiogenic growth factor VEGF-3 blockade increases the severity of inflammation, whereas promoting lymphatic function with VEGF-C attenuated intestinal inflammation, suggesting that the presence of lymphatic dysfunction in intestinal inflammation and stimulating lymphatic function might be a promising clinical approach.[6]

Another issue that should be considered is the length of the affected bowel. Endoscopic and/or imaging findings from MRE or CTE can identify the length of involved intestine, and therefore the amount that is theoretically associated with impaired intestinal lymphatic drainage. Therefore, a subgroup analysis based on the length of the diseased bowel would benefit the assessment of the changes in lymphatic-dependent transport. In addition, although a higher density of lymphatics, perilymphangitis, and lymphatic obstruction have been demonstrated to be constant features of Crohn's disease,[7] the dynamic processes of the lymphatic circulatory system are unknown. Recent advances in lymphatic imaging employing MRI, CT, lymphoscintigraphy, and advanced optical techniques might allow lymphatic drainage to be monitored *in vivo*.[8] Therefore, similar to cancer progression and metastasis, in patients with Crohn's disease, functional and architectural lymphatic changes and the response to treatment such as anti-TNF might be monitored by lymphatic imaging technologies.

Although there are several limitations in the study, it provides primary evidence that postprandial chylomicron transport is similar between healthy participants and those with active Crohn's disease of the ileum. However, one cannot exclude whether the similar chylomicron transport in Crohn's disease actually resulted from lymphangiogenesis, given that the increase in the number of vessels and marked lymphatic dilatation could improve lymph drainage. Further well-designed studies using emerging lymphatic imaging approaches are warranted.

YUN TIAN
Department of Oncology
Shanghai Dermatology Hospital
Tongji University
Shanghai 200443, China *and*
Department of Oncology
Tongji University Cancer Center
The Shanghai Tenth People's Hospital
Tongji University
Shanghai, China