outbreak of *C. difficile*.[2]

That proton pump inhibitors should be a risk factor[3] is of interest in this regard.[4] These drugs stimulate cation-dependent short-circuit currents in the colonic mucosa, possibly by converting the vanadate-sensitive H+/K+-ATPase into an electrogenic cation transporter.[5] Should the demand for energy from ATP (adenosine triphosphate) hydrolysis so induced exceed the capacity for ATP resynthesis, the action might precipitate an aerobic energy deficit or unreversed ATP hydrolysis similar to that developing for different reasons in ischemic colitis that occurs as a complication of abdominal aortic surgery. As in *C. difficile* colitis, the passage of liquid, blood-stained stools is an established feature of this condition.

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References

1. Fiddian-Green RG. *C difficile* colitis: is it really ischaemic colitis? [letter]. *Gut* 2004. Available: http://gut.bmjjournals.com/cgi/eletters/53/5/673#417 (accessed 2004 Oct 26). Electronic letter published online only.
2. Eggertson L, Sibbald B. Hospitals battling outbreaks of *C. difficile*. *CMAJ* 2004;171(1):19-21.
3. Dial S, Alrasadi K, Manoukian C, Huang A, Menzies D. Risk of *Clostridium difficile* diarrhea among hospital inpatients prescribed proton pump inhibitors: cohort and case–control studies. *CMAJ* 2004;171(1):33-8.
4. Thomson RD, Lestina LS, Bensen SP, Toor A, Maheshwari Y, Ratcliffe NR. Lansoprazole-associated microscopic colitis: a case series. *Am J Gastroenterol* 2002;97(11):2908-13.
5. Scheiner-Bobis G, Hubschle T, Diener M. Action of palytoxin on apical H+/K+-ATPase in rat colon. *Eur J Biochem* 2002;269(16):3905-11.

Competing interests: None declared.

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[Dr. Dial responds:]

Richard Fiddian-Green raises interesting questions about the possible direct effects of proton pump inhibitors on the colon. Although we hypothesized that the use of proton pump inhibitors increases patients' risk by making them more susceptible once exposed or perhaps through effects on the intestinal flora,[1] we questioned the possibility of other mechanisms, especially given that proton pumps in the colon have been described. Diarrhea is in fact one of the more common side effects of proton pump inhibitors.[2] The reports of lansoprazole-induced microscopic colitis[3] and the possible effects of elevated gastrin levels from use of proton pump inhibitors in the colon,[4] as well as the hypothesis raised by Fiddian-Green regarding increased ischemic risk for the intestinal mucosa, suggest that research in this area is warranted.

In some of the more severe cases we have observed, we questioned whether progression to a more fulminant course occurred because of a combination of an infectious with an ischemic insult, with the following possible scenario: severe diarrhea from *C. difficile* causes dehydration and relative hypotension, which leads to either global or localized bowel ischemia, which then acts as a motor for a systemic inflammatory response syndrome and a more fulminant presentation. The possibility that the reverse occurs — prior relative intestinal ischemia leading to increased susceptibility to the toxin and a more severe presentation — is intriguing, especially in light of a report by Dallal and associates.[5] These authors found that cardiothoracic procedures and vascular surgery were the most common operations that preceded fulminant *C. difficile* colitis, although this observation may simply reflect the high rate of these procedures.

I believe that the current outbreak is primarily infectious, since the observation of bloody diarrhea has been the exception rather than the rule; nonetheless, the contribution of an ischemic insult should be considered in the more severe forms. At this point, many unanswered questions remain, but hopefully continued research in this area will help clinicians to decrease the incidence of infection and improve patient outcomes.

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References

1. Dial S, Alrasadi K, Manoukian C, Huang A, Menzies D. Risk of *Clostridium difficile* diarrhea among hospital inpatients prescribed proton pump inhibitors: cohort and case–control studies. *CMAJ* 2004;171(1):33-8.
2. Martin RM, Dunn NR, Freemantle S, Shakir S. The rates of common adverse events reported during treatment with proton pump inhibitors used in general practice in England: cohort studies. *Br J Clin Pharmacol* 2000;50:366-72.
3. Thomson RD, Lestina LS, Bensen SP, Toor A, Maheshwari Y, Ratcliffe NR. Lansoprazole-associated microscopic colitis: a case series. *Am J Gastroenterol* 2002;97(11):2908-13.
4. Klingensmith ME, Neville LJ, Delpire E, Wolfe MM, Sybel DI. Gastrin-mediated effects of omeprazole on rat colon mucosa. *Surgery* 1999;126(2):272-8.

Mécanisme de présentation des lettres

Le site amélioré des cyberlettres du *JAMC* est désormais le portail de réception de tous les textes destinés à la chronique Lettres. Pour rédiger une cyberlettre, consultez un article sur le site www.jamc.ca et cliquez ensuite sur le lien «Lettres électroniques : répondre à cet article», dans la boîte en haut à droite de l'article. Toutes les cyberlettres seront étudiées pour une éventuelle publication dans le journal imprimé.

Les lettres répondant à un article publié dans le *JAMC* sont plus susceptibles d'être acceptées pour publication imprimée si elles sont présentées dans les deux mois de la date de publication de l'article. Les lettres acceptées pour publication imprimée sont révisées en fonction du style du *JAMC* et raccourcies au besoin (elles doivent habituellement compter au maximum 250 mots).

5. Dallal RM, Harbrecht BG, Boujoukas AJ, Sirio CA, Farkas LM, Lee KK, et al. Fulminant *Clostridium difficile*: an underappreciated and increasing cause of death and complications. *Ann Surg* 2002;235:363-72.

Competing interests: None declared.

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Corrections

The last name of the author of a recent Left Atrium article[1] was published incorrectly. The author's name is Alejandro R. Jadad. The online version was corrected.

Reference

1. Halifax ND, Gray R, Jadad AR. Self-portraits of illness: the gift of the gaze. *CMAJ* 2004;171(7):764-5.

DOI:10.1503/cmaj.1041680

In 2 recent articles,[1,2] the authors' omitted relevant information regarding their competing interests; their interests should have been listed as follows:

None declared for Peter Bogaty or Blair O'Neill. Paul Armstrong has received research funding from Hoffman-La Roche, Aventis and Boehringer Ingelheim, and educational and consultant funding from Hoffmann-La Roche and Aventis. Paul Dorian has received speaker fees from Guidant Corp., Medtronic Inc. and St. Jude Medical Inc. Dr. Buller has received research support from Guidant Corp. and Cordis Johnson & Johnson, consultant fees from Guidant Corp. and Aventis, and speaker fees from Hoffman-La Roche.

References

1. Bogaty P, Buller CE, Dorian P, O'Neill BJ, Armstrong PW. Applying the new STEMI guidelines: 1. Reperfusion in acute ST-segment elevation myocardial infarction. *CMAJ* 2004;171(9):1039-41.
2. Dorian P, Bogaty P, Buller CE, O'Neill BJ, Armstrong PW. Applying the new STEMI guidelines: 2. Disturbances of cardiac rhythm after ST-segment elevation myocardial infarction. *CMAJ* 2004;171(9):1042-4.

DOI:10.1503/cmaj.1041681

The authors of a recent research article[1] mistakenly omitted Joelle Bradley from their list of authors. She contributed to the development of the questionnaire, study design and data collection. At the time of her contribution she was a medical student at the University of Calgary. She has recently finished her residency in family medicine at the University of Alberta.

Reference

1. Wright B, Scott I, Woloschuk W, Brenneis F, Bradley J. Career choice of new medical students at three Canadian universities: family medicine versus specialty medicine. *CMAJ* 2004:170(13):1920-4.

DOI:10.1503/cmaj.1041682

The DOI published in a recent news item[1] was mistakenly listed as 10.1503/cmaj.1041056. It should be 10.1503/cmaj.1041506.

Reference

1. Kondro W. New standard of disclosure set for clinical trials. *CMAJ* 2004;171(8):839.

DOI:10.1503/cmaj.1041685

Reference 19 from a recent commentary[1] was missing information. The complete reference should have been listed as: *Tri-Council policy statement: ethical conduct for research involving humans*. Ottawa: Medical Research Council of Canada; Natural Sciences and Engineering Research Council of Canada; Social Sciences and Humanities Research Council of Canada; 2003 Jun. Article 7.3. Available: www.pre.ethics.gc.ca/english/pdf/TCPS%20June2003_E.pdf (accessed 2004 Oct 27).

Reference

1. Ferris LE, Naylor CD. Physician remuneration in industry-sponsored clinical trials: the case for standardized clinical trial budgets. *CMAJ* 2004;171(8):883-6.

DOI:10.1503/cmaj.1041683

In a recent article[1] there was a typographical error pertaining to the number needed to treat (NNT) for the SCD-HeFT trial. It should read NNT 14 rather than 1.

Reference

1. Davis DR, Tang ASL. Implantable cardioverter defibrillators: therapy against Canada's leading killer. *CMAJ* 2004;171(9):1037-8.

DOI:10.1503/cmaj.1041689