Does Gastrointestinal Surgery Increase the Prevalance of Clostridium Difficile Infection in Patients with Inflammatory Bowel Disease?

Carmen Hui MD, Mark Malamood MS IV, Timothy Palmieri MS III, Veena Nannegari MD, Jesse Green, MD, FACP
Albany Medical College, Department of Medicine. Division of Gastroenterology. Albany, New York

Purpose
* The aim of this study is to investigate the prevalence of CDI in patients with IBD who never had gastrointestinal surgery compared to patients with IBD who underwent disease related surgical intervention.

Background
* Antibiotic use is the most widely recognized risk factor for clostridium difficile infection (CDI). Other established risk factors include hospitalization, advanced age, severe illness, inflammatory bowel disease (IBD), and possibly gastrointestinal surgery.
* Although studies have reported a higher prevalence of CDI in IBD patients, there is a paucity of data examining the prevalence of CDI in patients who have received surgical intervention for IBD.

Methods
* Data was retrieved from Albany Medical Center’s electronic medical records using search terms to identify patients with IBD.
* A retrospective chart review identified patients with Crohn’s disease and ulcerative colitis from 2000-2012.
* Parameters studied included type of disease related surgery, age at surgery related to IBD, status of Clostridium difficile toxin positivity, and gender. Patients with IBD who never had testing for CDI were excluded.

Results
* Among 549 patients with CD and a history of gastrointestinal surgery for IBD, 53 tested positive for CDI (9.65%). Of the 442 patients with CD without prior surgery related to IBD, 63 tested positive for CDI (14.25%). P value = 0.0231.
* Among 96 patients with UC and a history of disease related surgical intervention, 10 tested positive for CDI (10.41%). Of the 358 patients with UC without prior surgery related to IBD, 40 tested positive for CDI (11.17%). P value = 0.2694.

Conclusion
* Crohn’s disease and ulcerative colitis are chronic relapsing inflammatory conditions that require long term medical therapy, periodic hospitalizations, and/or surgery.
* Chronic use of antibiotics and immunosuppressants/biologic agents have been shown to increase the risk of CDI in IBD patients. CDI has been reported in ulcerative colitis patients with restorative proctocolectomy and ileal pouch anal anastomosis.
* Our data suggest that a history of gastrointestinal surgery may increase the prevalence of CDI in patients with CD but not UC. Further studies should be conducted to confirm this finding. If this finding is confirmed in future studies, then measures to mitigate the occurrence of CDI in CD patients undergoing surgery should be considered.

Crohn’s Disease

<table>
<thead>
<tr>
<th></th>
<th>Clostridium Difficile Infection Positive (+)</th>
<th>Clostridium Difficile Infection Negative (-)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBD related surgery +</td>
<td>53</td>
<td>496</td>
<td>549</td>
</tr>
<tr>
<td>No prior surgery</td>
<td>63</td>
<td>379</td>
<td>442</td>
</tr>
<tr>
<td></td>
<td>116</td>
<td>875</td>
<td>991</td>
</tr>
</tbody>
</table>

% of CD patients with surgery who are CDI positive is 53/549 = 9.65%
% of CD patients without surgery who are CDI positive is 63/442 = 14.25%

Ulcerative Colitis

<table>
<thead>
<tr>
<th></th>
<th>Clostridium Difficile Infection Positive (+)</th>
<th>Clostridium Difficile Infection Negative (-)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>IBD related surgery +</td>
<td>10</td>
<td>86</td>
<td>96</td>
</tr>
<tr>
<td>No prior surgery</td>
<td>40</td>
<td>318</td>
<td>358</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>404</td>
<td>454</td>
</tr>
</tbody>
</table>

% of UC patients with surgery who are CDI positive is 10/96 = 10.41%
% of UC patients without surgery who are CDI positive is 40/358 = 11.17%

Acknowledgments:
Special thank you to Dr. Veena Nannegari and Dr. Jesse Green from Albany Medical Center - Division of Gastroenterology. Thank you to the staff in the Internal Medicine Department.

References: