A nationwide cohort study of colectomy rates for ulcerative colitis during the introduction of biologic therapy

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Disclosures:

Conflict of interest:

• Other: Takeda, outside the submitted work
Figure 2 | The global prevalence of IBD in 2015. Data from Molodecky et al. Adapted from an image provided by PresenterMedia.
20 to 30% lifetime colectomy rate
The incidence rate of colectomy for medically refractory ulcerative colitis has declined in parallel with increasing anti-TNF use: a time-trend study


Decreasing Colectomy Rates for Ulcerative Colitis: A Population-Based Time Trend Study

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Colectomy rate in acute severe ulcerative colitis in the infliximab era

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As Infliximab Use for Ulcerative Colitis Has Increased, so Has the Rate of Surgical Resection

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Risk of Surgery for Inflammatory Bowel Diseases Has Decreased Over Time: A Systematic Review and Meta-analysis of Population-Based Studies

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1. Colectomy rate after emergency UC admission

2. Change in colectomy rate over time

   (NICE license for Infliximab (IFX) and the IBD Standards introduced)
Inclusion criteria: emergency cohort

Hospital Episode Statistics (HES) 2003 – 2016
- All English NHS patients

Emergency UC admissions ≥3 days

Age over 17

Biologic medication coding from 2006
Inclusion criteria: English population cohort

Hospital Episode Statistics (HES) 2003 – 2016
-All English NHS patients

All UC colectomies

Age over 17
Colectomy over time – mixed methods analysis

Kaplan Meier

Cox proportional hazards regression

Average annual percentage change (AAPC)

Interrupted time series (ITS) – inflexion point 2008/9
Emergency UC Cohort

37,981 patients

49% female

median age 46

median follow-up 3.4 years
Cumulative incidence of colectomy after emergency UC admission

- one year = 0.17
- three years = 0.21
- five years = 0.23

(SE .00)
Line graph showing annual colectomy rate at 30 days, 1, 3 years and 30-day IFX use

- 30-day AAPC -1.6
- 1-year AAPC -1.8
- 3-year AAPC -0.7
- IFX within 30 days AAPC +52.6
### 2003-2008 vs 2009-2016

**Emergency cohort: N=37,981**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Time period</th>
<th>Odds Ratio (*) (95% CI)</th>
<th>Interaction P-value (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 day colectomy</td>
<td>2003-2008</td>
<td>1.01 (0.98, 1.04)</td>
<td>0.003</td>
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<tr>
<td></td>
<td>2009-2016</td>
<td>0.96 (0.94, 0.98)</td>
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</tr>
<tr>
<td>90 day colectomy</td>
<td>2003-2008</td>
<td>1.01 (0.98, 1.04)</td>
<td>0.008</td>
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<td></td>
<td>2009-2016</td>
<td>0.96 (0.95, 0.98)</td>
<td></td>
</tr>
<tr>
<td>1 year colectomy</td>
<td>2003-2008</td>
<td>1.00 (0.98, 1.03)</td>
<td>0.08</td>
</tr>
<tr>
<td></td>
<td>2009-2016</td>
<td>0.97 (0.95, 0.99)</td>
<td></td>
</tr>
<tr>
<td>3 year colectomy</td>
<td>2003-2008</td>
<td>1.00 (0.97, 1.02)</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td>2009-2016</td>
<td>0.98 (0.95, 1.01)</td>
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</table>
2003-2008 vs 2009-2016
Total population cohort: N=17,580

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Time period</th>
<th>Rate Ratio (*) (95% CI)</th>
<th>Interaction P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Colectomies</td>
<td>2003-2008</td>
<td>1.001 (0.988, 1.015)</td>
<td>0.002</td>
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<tr>
<td></td>
<td>2009-2016</td>
<td>0.976 (0.968, 0.985)</td>
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<tr>
<td>Emergency Colectomies</td>
<td>2003-2008</td>
<td>1.000 (0.979, 1.021)</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>2009-2016</td>
<td>0.990 (0.976, 1.002)</td>
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</tr>
<tr>
<td>Elective Colectomies</td>
<td>2003-2008</td>
<td>1.003 (0.985, 1.020)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>2009-2016</td>
<td>0.967 (0.956, 0.978)</td>
<td></td>
</tr>
</tbody>
</table>

Emergency colectomies
p=0.42

Elective colectomies
p<0.001
Conclusions

Modest reduction in colectomy rate at some intervals after an emergency UC admission

Reduced rates after 2008 are likely multifactorial
- IBD Standards 2009

Short term > medium term  Elective > emergency

Lack of data on disease severity precludes further detailed interpretation of the influence of biologic medications