Endoscopic protection from left versus right-sided colon cancer

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Background

Globally, colorectal cancer (CRC):

3\textsuperscript{rd} MC cancer \rightarrow Males

2\textsuperscript{nd} MC cancer \rightarrow Females

In US, CRC ranks 3\textsuperscript{rd} in cancer incidence and cancer mortality in both males and females
Adenoma to Carcinoma sequence
Anatomic site distribution of colon cancer

- Cecum: 19.9%
- AC: 10.9%
- HF: 10%
- TC: 6.3%
- SF: 4.6%
- DC: 4%
- Sigmoid: 2.9%
- Rectosigmoid: 6.3%
- Rectum: 24.3%
Right vs Left-sided colon cancer

Over the last 50 years, a gradual shift toward right-sided colon cancers has been observed both in the United States and internationally (2)
Rates of New or Missed Colorectal Cancers After Colonoscopy (7,8)
2007

Rates of new or missed cancer

- Cecum/AC
- Transverse colon
- Splenic flexure/DC
- Rectal/sigmoid colon
Case control study
Population size >9000
Colonoscopy is effective for the prevention of CRC deaths in a US setting and that effectiveness is lower in the proximal colon.
Objective

To determine if the protective effect of prior endoscopy was different for left vs right-sided colon cancer within Gundersen health system.
Methods

Retrospective chart review of patients with CRC from January 2006 to March 2013
Total patients (n= 464)

Included (n= 357)

Excluded (n= 107)
- Age < 50
- Transverse colon cancer
- Inflammatory Bowel Disease
  - Ulcerative colitis
  - Crohn’s Disease
- Inherited genetic alteration
  - Lynch Syndrome/HNPCC
  - Peutz-Jeghers syndrome
- Not colon primary
- Incomplete endoscopy
Data collection

Included Patients
n = 357

Left sided CRC
  - Prior Endoscopy
  - No Prior Endoscopy

Right sided Colon Cancer
  - Prior Endoscopy
  - No Prior Endoscopy
Results

N = 357

Left sided cancer (55.2%)

Prior Endoscopy 25.4%

Right sided cancer (44.8%)

Prior Endoscopy 39.4%
## Results

<table>
<thead>
<tr>
<th>Prior Protective Endoscopy</th>
<th>Left sided Colon cancer</th>
<th>Right sided Colon cancer</th>
<th>P- Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>74.6</td>
<td>60.6</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>25.4</td>
<td>39.4</td>
<td>&lt; 0.005</td>
</tr>
</tbody>
</table>
Trends occurred in the prior endoscopy group toward improved survival ($p=0.074$) and earlier cancer stage ($p=0.083$) at diagnoses.
Limitations

- Retrospective study design
- Endoscopies were performed by multiple providers
- Transverse CC were not included

Results were unchanged after including the patient with Transverse CC in right sided CC group.
Conclusion

Prior endoscopy is more protective for left-sided colon cancer than right-sided colon cancer within Gundersen health system.
Discussion

Possible theories behind the difference in protective effect of endoscopy

1. Incomplete colonoscopy
2. Inadequate bowel preparation
3. Anatomic configuration- Haustral folds become taller as one moves proximally in the colon
4. Difference in histopathological appearance and molecular biologic pattern (6,9,10)
References

Thank you