Can colonoscopy at peripheral day hospitals meet internationally accepted quality and safety standards?

Mehul Lamba, Steven Ding

ABSTRACT

AIMS: To perform an independent review of the quality and safety of colonoscopy service at the Canterbury Charity Hospital (CCH).

METHODS: Demographic, endoscopy and histology data on all colonoscopies performed at CCH between 1 October 2016 and 31 September 2017 were collected. Quality indicators ascertained were caecal intubation rate, mean withdrawal time and adenoma detection rate (ADR). These were assessed using current recommendations by the Joint American College of Gastroenterology and American Society of Gastrointestinal Endoscopy task force.

RESULTS: Thirty-four patients, mean age 44 years (range 21–62), underwent colonoscopy. The most common indications were rectal bleeding and/or altered bowel habit (19 patients). Eight asymptomatic patients underwent colonoscopy because of a family history of CRC or a personal history of colorectal polyps; six of these were over 50 years old. Twelve patients had haemorrhoids and seven patients had adenomatous polyps. The caecal intubation rate was 97.1%. Among asymptomatic patients over 50 years undergoing colonoscopy, mean withdrawal time was 7.5 minutes (range 5–10) and ADR was 33.3%. No complications were recorded.

CONCLUSION: The colonoscopy service at CCH was safe and complied with the accepted quality indicators. Our data suggest that delivery of high-quality colonoscopy services might be possible in similar peripheral and day hospitals around New Zealand. Increasing colonoscopy services in such centres would reduce the excessive workload of larger public hospitals and reduce the level of unmet need for colonoscopy services.

Gastrointestinal (GI) endoscopy is playing an ever-increasing role in the management of GI disorders. Colonoscopy is one of the most effective tools in screening for colorectal carcinoma (CRC), hence there has been an increase in demand for the procedure.1,2 There is, however, limited availability of colonoscopy in public hospitals in New Zealand, in part because of its associated high costs. Trends to centralise the delivery of colonoscopy services while limiting access to public hospitals has resulted in a substantial level of unmet need for patients with GI symptoms. The provision of colonoscopy services in peripheral or day hospitals could help to resolve this problem. However, concerns have been raised regarding the quality and safety of colonoscopy services in peripheral ambulatory centres.3–5

Access to colonoscopy services in Canterbury is based on the Canterbury colorectal symptom pathway (CCrSP), whereby patients deemed at high risk of CRC are prioritised.4 Patients with lower gastrointestinal symptoms who do not meet the CCrSP ‘cut-off score’ are not currently offered colonoscopy as a routine. While private colonoscopy services are easily
accessible, they are not affordable for many such patients. In order to cater for this unmet need, the Canterbury Charity Hospital (CCH) has been providing free colonoscopy to these patients upon receiving a referral from their general practitioner.

The aim of our independent study was to review the quality of the colonoscopy service provided at the CCH, based on internationally accepted quality indicators.

Methods

The history and functioning of the CCH is described elsewhere. It relies entirely on community-based charitable funding and is largely staffed by a volunteer medical, nursing and support workforce. It offers a variety of services including general surgery, medical subspecialties, ophthalmology, gynaecology, orthopaedics, oral surgery and dentistry to patients who have been unable to access care in the public hospital system and cannot afford private care. Endoscopists working at the CCH are accredited by the New Zealand Conjoint Committee for Recognition of Training in Gastrointestinal Endoscopy and their endoscopic work is reviewed regularly by the hospital’s clinical board.

Records of all colonoscopies undertaken at the CCH during a 12-month period (1 October 2016 to 31 September 2017) were collected. Demographic data, indications for colonoscopy and findings at colonoscopy were available in all cases. Histology reports were reviewed for those who underwent colorectal biopsies or polypectomies and the following colonoscopy quality indicators were collected: caecal intubation rate, withdrawal time and adenoma detection rate (ADR). The CCH adverse events records, which list in-hospital and follow-up data, were also reviewed. The data were analysed descriptively.

Results

During the year under investigation, colonoscopies were performed by two endoscopists in 11 sessions, the average number of colonoscopies per session being three (range 2–4). Eighteen patients (53%) were male and their mean age was 44 years (range 21–62).

Time of insertion of the colonoscope, time to reach the caecum and procedure end-time were recorded in 31 patients, from which “withdrawal time” was calculated. As shown in Table 1, the most common indications for colonoscopy were: rectal bleeding; rectal bleeding and altered bowel habit; a family history of CRC; altered bowel habit; and personal history of colorectal polyps.

Table 1: Indications for colonoscopy.

<table>
<thead>
<tr>
<th>Indication</th>
<th>n (percentage)</th>
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<tbody>
<tr>
<td>Rectal bleeding</td>
<td>11 (35.4%)</td>
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<tr>
<td>Rectal bleeding and altered bowel habit</td>
<td>8 (25.8%)</td>
</tr>
<tr>
<td>Family history of colorectal cancer (CRC)</td>
<td>4 (12.9%)</td>
</tr>
<tr>
<td>Altered bowel habit</td>
<td>3 (9.7%)</td>
</tr>
<tr>
<td>History of colorectal polyps</td>
<td>4 (12.9%)</td>
</tr>
<tr>
<td>Not specified</td>
<td>2 (9.7%)</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
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Colonoscopy was not tolerated by one patient and was therefore abandoned. Among the remainder, the most common pathology detected were haemorrhoids of mild to moderate severity (12 patients), adenomatous polyps (seven patients), diverticulosis (four patients), and hyperplastic polyps (four patients). No pathology was found in seven patients.

Quality indicators for colonoscopy utilised routinely at the CCH are shown in Table 2. Caecal intubation was achieved in 33 of 34 patients and ileal intubation was documented in nine. The mean withdrawal time for all non-interventional colonoscopies (excluding polypectomy or banding haemorrhoids) was 8.9 minutes (range 3–21). Only 3 of 20 non-interventional colonoscopies had mean withdrawal time less than six minutes. The average withdrawal time for non-interventional colonoscopies in asymptomatic patients undergoing colonoscopy because of a family history of CRC or a personal history of colorectal polyps was 7.5 minutes (range 5–10).

Among six patients >50 years, who underwent colonoscopy for surveillance of CRC, adenomatous polyps (with low grade dysplasia) were detected in two patients and hyperplastic polyps in one patient. No advanced adenomas (high-grade dysplasia, villous histology, size >10mm) or carcinomas were detected. No immediate or delayed complications were recorded.
Discussion

With growing public awareness of bowel diseases and associated symptoms, thanks in part to roll-out of the New Zealand national bowel cancer screening program, requests for colonoscopy procedures have increased in recent years. Colonoscopy, however, is a scarce resource in the public health system and is not routinely offered to patients who are deemed to be at low risk of CRC. A substantial proportion of such patients cannot afford colonoscopy in private and therefore contribute to the high level of unmet healthcare need in New Zealand.7,8,12

In Christchurch, the CCH offers colonoscopy service to patients who have gastrointestinal symptoms or at increased risk of CRC, but do not qualify for investigation in the public hospital and who cannot afford private healthcare. We considered that if colonoscopies performed at the CCH were safe and complied with internationally accepted quality indicators, then the procedure could likewise be performed at similar other peripheral and day hospitals throughout the country, thereby reducing the current burden on larger city hospitals.

In this study, we demonstrate that colonoscopies performed at the CCH over a one-year period detected significant pathology, including adenomatous polyps in seven patients who had been refused the service in the local public hospital. Importantly, internationally accepted quality indicators for colonoscopy published by the joint American Society of Gastrointestinal Endoscopy (ASGE) and the American College of Gastroenterology (ACG) task force in 2015 were met.9 The mean withdrawal time for all non-interventional colonoscopies was 8.9 minutes, while that for non-interventional screening colonoscopies was 7.5 minutes.

The ASGE/ACG guidelines recommend a mean withdrawal time of six minutes to improve polyp detection. A prospective study of colonoscopy withdrawal time at Christchurch hospital by Lim et al showed improved ADR if the withdrawal time was greater than six minutes.13 Furthermore, the ADR rate for those undergoing colonoscopy because of a family history of CRC or a past history of colorectal polyps, and over 50 years of age at the CCH was 33.3%, which complies with the current ASGE/ACG recommendation. Both, ADR and caecal intubation rate have been identified as priority indicators by the ASGE and ACG, complying with which is strongly associated with improved clinical outcomes.9,14,15 Of note, no complications were observed.

The main limitation of our study is relatively small sample size due to low number of colonoscopies performed at the CCH during a previous one-year period. As the service expands, it would be prudent to carry out similar audits for safety and quality parameters in future.

Colonoscopy services are increasingly provided in peripheral ambulatory centres in the west,16 however these are largely restricted to secondary and tertiary public hospitals in New Zealand. Increasing demand for colonoscopy service is expected to put yet further strain on the existing infrastructure. Decentralisation and reallocation of colonoscopy to smaller peripheral centres is an alternative solution, provided that the services are of high quality and meet internationally accepted quality and safety standards. The current independent study provides reassurance that it is indeed possible to provide colonoscopy service that is safe and of high quality in an ambulatory setting.

Table 2: Quality indicators of colonoscopy provided at CCH.

<table>
<thead>
<tr>
<th>Quality indicators</th>
<th>CCH</th>
<th>ASGE/ACG recommendations</th>
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<tr>
<td>Caecal intubation rate</td>
<td>97.1%</td>
<td>&gt;90%</td>
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<tr>
<td>Mean withdrawal time in negative result colonoscopies</td>
<td>7.5 minutes</td>
<td>&gt;6 minutes</td>
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<td></td>
<td>(range 5–10)</td>
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<td>Adenoma detection in asymptomatic patients* &gt;50 years</td>
<td>33%</td>
<td>Males &gt;30% Females &gt;20%</td>
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</tbody>
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CCH—Canterbury Charity Hospital; ASGE—American Society of Gastrointestinal Endoscopy, ACG—American College of Gastroenterology

*Asymptomatic patients undergoing colonoscopy because of a family history of CRC or a personal history of colorectal polyps.
Competing interests: Nil.

Acknowledgements:
Colonoscopies in this study were performed by P Bagshaw and I Kolossa, volunteer specialist surgeons working at the Canterbury Charity Hospital.

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REFERENCES: