

Three consecutive audits to achieve acceptable colonoscopy completion rates

Shaheen Ayoob Bhatti,¹ Niaz Ahmed Shaikh,² Syed Shakil Akhter,³ Hamid Manzoor,⁴

Adeela Khatian,⁵ Beenish Khan,⁶ Saleha Kanwal Ali⁷

Medical Unit One, Civil Hospital Karachi,^{1-3,5-7} Sindh Govt Qatar Hospital, Karachi.⁴

Abstract

Objective: To compare the acceptable colonoscopy completion rates in three successive audits, identifying the reasons for failure of completion and rectifying them to improve the performance at our endoscopy unit.

Methods: Study was conducted at Endoscopy unit of Medical Unit One Civil Hospital Karachi. The first audit was conducted retrospectively on the colonoscopy results, done from November 2004 to November 2005. As the information was incomplete, a performa was designed for the next prospective audit from December 2005 to November 2006. The shortcomings found in the results of this audit were improved in the third audit done prospectively from December 2006 to November 2007.

Results: In the first audit 164 patients (111 male) underwent colonoscopy. The mean age was 40 ± 10.08 years. The overall caecal intubation rate was 55%, but adjusted caecal intubation was not calculated because of inadequate documentation. In the second audit, 119 patients (66 male) underwent colonoscopy. The mean age was 45 ± 10.17 years. After implementing changes the overall crude caecal intubation rate was 54.8% and the adjusted caecal intubation rate was 75% with exclusion of strictures and poor preparation. In the third audit, 122 patients (58 males) underwent colonoscopy. The mean age was 38 ± 11.07 years. With further improvement in methodology the overall crude caecal intubation rate was (80.3%) and the adjusted caecal intubation rate was (98%).

Conclusion: These audits allowed us to evaluate our endoscopy services and to detect the short comings and deviation from standard techniques and hence improving the performance in the subsequent year for the benefit of patients (JPMA 59:461; 2009).

Introduction

Colonoscopy is acknowledged as the gold standard for examining the colon.¹ Colonoscopy, introduced in the late 1960s, has become the principal method for diagnosis, treatment, and follow-up of colorectal diseases.² It is assuming increasing importance in the practice of gastroenterology; practice audit is essential for determining professional education.³ Examination of colonic surface by video endoscope (colonoscope) is the most accurate method for diagnosis of colonic disease and for surveillance of patients at high risk of developing cancer.⁴ It is highly operator dependant and standards vary greatly.⁵ There are several ways to visualize the colon. Colonoscopy is the most accurate method with the advantage that biopsy specimens can be taken from suspicious lesions and precancerous polyps can be excised. However, colonoscopy may be uncomfortable for the patient, usually entails intravenous sedation, and has perforation rates upto 0.5% and mortality approach 0.1%. The risks are thought to be higher in elderly population.⁶ The standard requirements for colonoscopy are to reach caecum in more than 90% of time and perform the procedure in a reasonable period of time, find and diagnose all sigmoidoscopic lesions and complete procedure with minimal risk of complications and patients' discomfort.⁷ Completion rates of over 90% should be

attainable after 200 examinations, though published completion rates vary widely from 55% -98%.⁸ Completion to caecum is confirmed through use of combination of signs, indentation or transillumination in the right iliac fossa and view of appendix, the triradiate fold or the illeocaecal valve.⁵ The aim of this study was to compare the acceptable colonoscopy completion rates in three audits at our endoscopy unit by implementing the shortcomings of the previous audit in the prospective one.

Methods

First audit was a retrospective audit whereas the second and third were prospective audits. Patients demographics data and indications for colonoscopy were noted. If patient had more than one indication, it was included separately for statistics. Colonoscopy findings, completion rates and complications were recorded. All patients were prescribed standard bowel preparation which consisted of a low residue diet for 48 hours with clear liquids for last 24 hours and 45ml of mixture of liquid paraffin and Sodium Picosulphate taken 12 hours before examination. Midazolam and Nalbuphin were used for conscious sedation as needed.

Audits were used to identify reasons for incomplete colonoscopies and instituted appropriate changes to

improve performance. The first audit done from November 2004 to November 2005 was a retrospective one on the colonoscopy results. The information from record was incomplete so a new performa was designed for the second prospective audit from December 2005 to November 2006. The reasons for incomplete colonoscopies were identified and proper changes instituted in the third prospective audit from December 2006 to November 2007.

Results

In the first audit from Nov 2004 to Nov 2005, 164 patients (111 male) underwent colonoscopy. The mean age was 35±10.08 years. Indications for colonoscopy and the gross findings during the three audits are described in Table 1 and 2 respectively. The overall caecal intubation rate was

Table-1: Symptoms/findings prompting patients referral for colonoscopy.

Symptoms	First audit n=164	Second audit n=119	Third audit n=122
Abdominal pain	93 (56.70%)	75 (63%)	56 (46%)
Bleeding p/r	77 (46.95%)	48 (40%)	54 (44%)
Diarrhoea	49 (30.0%)	39 (33%)	54 (44%)
Anaemia	20 (12.19%)	6 (5%)	28 (23%)

p/r: per rectum. *Most patients had more than one symptom.

Table-2: Gross findings on colonoscopy.

Gross appearance	First audit n=164	Second audit n=119	Third audit n=122
Normal colon	91 (56%)	65 (55%)	68 (56%)
Inflamed mucosa	28 (17%)	24 (20%)	10 (8%)
Ulcerative colitis	18 (11%)	12 (10%)	24 (20%)
Carcinoma colon	20 (12%)	12 (10%)	14 (11%)
Polyps	7 (4%)	6 (5%)	6 (5%)

55%, but no proper documentation was done regarding the reason for failure to achieve completion, so proper adjusted caecal intubation rate could not be calculated. In second audit of Dec 2005-Nov 2006, 119 patients (66 male) underwent colonoscopy. The mean age was 40±10.07 years. After implementing changes the overall crude caecal intubation rate was 54.8% which was then adjusted following exclusion of strictures, poor preparation and some requested only sigmoid examination. So the adjusted caecal intubation rate was 75%.

In the third audit from Dec 2006-Nov 2007, 122 patients (58 males) underwent colonoscopy. The mean age was 38±11.07 years. With further improvement in methodology the overall crude caecal intubation rate was (80.3%). This was then adjusted following exclusion of strictures, poor preparation and some requested for only left side colon examination, which accounted for 16 patients. So

Table-3: Caecal intubation rate.

Rate	First audit	Second audit	Third audit
Crude	55%	54.8%	80%
Adjusted	No documentation	75%	98%

the adjusted caecal intubation rate was (98%). Caecal intubation rate in the three audits are described in Table 3. No complications were noted during the three audits except post procedural pain in some patients.

Discussion

Civil Hospital Karachi provides tertiary care facilities in Karachi. Medical unit one has been providing regular endoscopy facilities for the last twenty years. Regular colonoscopies are being carried out for the last five years with the availability of video colonoscope CF Q 16 OAL. Cases are referred from both inpatient as well as outpatient department, not only from civil hospital but also from periphery hospitals. As in many other areas in medicine, standards in colonoscopy are being evaluated worldwide.⁴

Colonoscopy completion rates have varied in different audits and suggests that it often falls short of the 85% completion rate to the caecum considered acceptable by some authorities.⁹ The standard requirements for colonoscopy are to reach the caecum in more than 90% of time.⁷

Audits performed at our center gave variable results. First audits results were far from standard results because of inadequate referrals and also incomplete documentation of reasons for failure to achieve completion rate, so a revised performa was designed for patient enrollment and also for colonoscopy findings and preparation. The patients in the second audit were properly guided for bowel preparation as well as were given written instructions. Also it was documented in the second audit about the grade of bowel preparation and so the adjusted caecal intubation rate was calculated and was found to be acceptable.

After the second audit some improvement in colonoscopy completion rates was observed, but still was far behind the standard. The reasons noted were the long and tiring endoscopy lists which included on an average fifteen upper GI endoscopies and four to five colonoscopies. So a separate day list for colonoscopy was conducted and also endoscopists themselves gave detailed instructions for bowel preparation to the patients.

Audit done by Jennifer E Ball et al, showed the improvement for completion of colonoscopy in two

consecutive audits were from 60% in 1998 to 89% in 2002.¹⁰

Taylor et al concluded in his audit that almost one third of colonoscopists did not achieve colonoscopy completion rates of at least 90% and less than half performed more than 100 colonoscopies during the 12 month study.¹¹ In another audit done by Bowles et al caecal intubation rate was reported in 77%, however if identification of illeocecal valve or Ileal intubation were taken as the only reliable indicators of caecal intubation the rates fell to 57%.¹ In response to this a prospective audit was performed at a combined district general hospital and specialist endoscopy unit was carried by Thomas Gibson et al and the overall intubation rate was 93%. Probably the prospective audit had favourably influenced the outcome during the period. This may have been so; but audit was intended to improve standards and make practitioners aware of the need for continual improvement.⁴

The performance of endoscopists at our unit improved over time. This suggested that conducting audits for looking into ones shortcomings and making required changes have a specific effect on both the individual and departmental performance. The success rate for reaching the caecum has been widely discussed as an indicator of technical expertise for colonoscopy. However, few studies have addressed the impact of endoscopist-specific parameters on caecal intubation rates.¹² Other markers of service quality would include documentation of markers of reaching caecum, surveys of patients experience and satisfaction, including discomfort or the frequency of missed lesions. So relatively simple steps can be taken which could lead to acceptable completion rates of

colonoscopy.

Conclusion

Audits are intended to improve standards and make practitioners aware of need for continual improvement. As in these three successive audits at our unit, the colonoscopy completion rates improved from 75% to 98% in the final audit. We now need to go on to consider additional improvements to the quality of our colonoscopy services.

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