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Original Article

Endoscopy audit over 10 years in a community hospital in Egypt ☆

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ABSTRACT

Background: Practice variation is likely to have an important impact on the effectiveness of endoscopy. Performing regular quality audits allows identification of potential underperformance and consequently can result in significant improvement in endoscopy quality. An annual audit was conducted in a community hospital in Egypt.

Aim: The aim of the study was to determine if practice and performance of endoscopy is influenced by a consistent audit process by looking for improvement in completeness of procedures over a 10-year period.

Patients and methods: A total of 3736 consecutive procedures were prospectively assessed between years 2004 and 2014.

Results: The completion rates improved consistently. Esophagogastroduodenoscopy (EGD) completion rate was 99.9% in 2004–2008 and 99% in 2009–2013 ($P = 0.5$). Initial hemostasis of EGD-gastrointestinal bleed increased from 82% in 2004–2008 to 86% in 2009–2013 ($P = 0.04$). Adequate bowel cleansing increased from 60% in 2004–2008 to 67% in 2009–2013 ($P = 0.13$). Crude completion rates increased from 66% in 2004–2008 to 79% in 2009–2013 ($P = 0.007$). Adjusted completion rates increased from 80% in 2004–2008 to 95% in 2009–2013 ($P = 0.0001$). Ileoscopy rates in patients with chronic diarrhea increased from 79% in 2004–2008 to 97% in 2009–2013 ($P = 0.01$). Endoscopic polypectomy rates increased from 65% in 2004–2008 to 94% in 2009–2013 ($P = 0.0004$). Complete polyp removal rates increased from 77% in 2004–2008 to 87% in 2009–2013 ($P = 0.19$). Complete polyp retrieval rates increased from 85% in 2004–2008 to 89% in 2009–2013 ($P = 0.34$).

Conclusion: Continuous audit over 10 years can enhance endoscopy performance, improve the quality of endoscopic procedures and lead to better outcomes.

1. Introduction

Over the last four decades, gastrointestinal endoscopy has become of paramount importance to diagnose, treat, and prevent diseases of the digestive tract. Over past decade there has been an increasing interest in quality issues in endoscopy in order to ensure that high-quality endoscopic procedures are performed in all cases. Practice variation however is likely to have an important impact on the effectiveness of endoscopy and can impair the delivery of high-quality endoscopic procedures. The American Society of Gastrointestinal Endoscopy (ASGE) and the British Society of Gastroenterology (BSG) have each published quality indicators in endoscopy that were updated in 2015.[1–4] Selected performance targets were recommended for each quality indicator to serve as specific goals for measuring quality improvement.[1–4] The European Society of Gastrointestinal Endoscopy (ESGE) has published a short list of key performance measures for lower gastrointestinal endoscopy in 2017.[5] ESGE recommended that endoscopy services across Europe adopt key performance measures for lower gastrointestinal

Abbreviations: EGD, Esophagogastroduodenoscopy; ASGE, American Society of Gastrointestinal Endoscopy; BSG, British Society of Gastroenterology; ESGE, European Society of Gastrointestinal Endoscopy.

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endoscopy for measurement and evaluation in daily practice at a center and endoscopist level.[5]

Having a guideline does not result in improved health outcomes per se; in order to improve quality, it is essential to implement guidance and measure performance. Performing regular quality audits allows identification of potential underperformance, which provides an opportunity for discussion and support for the endoscopist.[6] It is recommended that all units develop mechanisms for audit and feedback of endoscopists' performance using quality markers. In addition, standards should be set with clear strategies on how to manage the performance of those who fall below the agreed standards, such as further training and mentoring.[6] There is clear evidence that implementing the above measures, along with additional measures such as structured training programs, can result in significant improvement in endoscopy quality. For example, in the United Kingdom, following a decade of quality improvement initiatives, cecal intubation rate improved nationally from 76.9% to 92.3%.[7] However despite the dramatic overall improvement, there was still unacceptable variation in quality, and more work is required.[7]

Endoscopy units need to be sure that they are delivering high quality endoscopy at levels consistent with recognized standards.[8] It is therefore important to determine if endoscopists are achieving these standards by measuring key performance indicators.[8] The audit process is one tool for evaluating performance and producing local service improvement. Providing feedback to endoscopists on various parameters of endoscopy may serve to enhance performance. However, audit is often collected in an ad hoc manner and may not be consistent over a long period.[7] There is limited data on trends for key performance indicators and it remains uncertain whether the audit process enhances quality over time.[7]

Completeness of procedure is one of the quality domains used as a performance measure of endoscopy.[5] Completeness of procedure has been found to be highly variable between endoscopists especially in colonoscopy.[6] There is evidence in the medical literature to support a disparity in colonoscopy performance with respect to cecal intubation rates.[9] Cecal intubation is one of the main goals of colonoscopy; however, complete colonoscopy rates vary considerably.[10] Incomplete colonoscopies pose a clinical concern because management strategies to assess patients with incomplete colonoscopies vary.[10]

Bolak Eldakror Hospital is a secondary-care governmental hospital in Giza, Egypt. Esophagogastroduodenoscopy (EGD) and colonoscopy are performed. An endoscopy quality-assurance program was instituted in 2003 when quality indicators developed by the ASGE and BSG were implemented.[11] Initially it involved setting standards of practice and designing an approved training program. An annual audit was conducted to monitor performance. The aim of the study was to determine if practice and performance of endoscopy is influenced by a consistent audit process by looking for improvement in completeness of procedures over a 10-year period.

2. Patients and methods

The study was performed in Bolak Eldakror hospital which is a secondary-care governmental hospital in Giza, Egypt. The endoscopy unit is staffed with three endoscopists, one secretary and four nurses.

Completeness of endoscopic procedures was evaluated over a 10 year-period between January 2004 and January 2014. Completeness of procedure was measured through assessment of technical and therapeutic outcomes of endoscopy.[12] Technical aspects of the procedure include completion of the examination and therapeutic maneuvers.[1] Criteria of completion were identified. EGD was defined as complete if gastric retroflexion and visualization of the second part of the duodenum were performed. Patients with esophageal stenosis, gastric obstruction or incomplete examination due presence of blood were excluded. The agreed standard for EGD completion rate is $\geq$95% of all cases.[1,3] Hemostasis of EGD bleeding was attempted at the time of initial endoscopy. Once an intervention has been undertaken, the procedure was considered successful if bleeding stopped and there was no recurrent bleeding within five days of intervention. In many prospective series that have evaluated different modalities for managing actively bleeding upper gastrointestinal lesions, immediate hemostasis rates from 90% to 100% have been achieved.[1,3] At present, there are no currently accepted standards of hemostasis attainment in community practice from which to assign an evidenced-based performance target.[1,3] All patients undergoing colonoscopy were prescribed a standard bowel preparation consisting of a low residue diet for 48 h, with clear fluids only for the last 24 h, and a purgative (caster oil) to be taken for the last 12 h before the procedure. An enema was given twice at night and immediately before the procedure. The quality of bowel preparation was graded as excellent (completely clear), good (clear liquid aspirable stool), fair (semisolid debris, adhering to the colonic mucosa and not allowing adequate vision of the whole mucosa), or poor (solid stool, not allowing adequate progression of the endoscope and leading to subsequent termination of the procedure).[1] The quality of bowel preparation was graded as: 'excellent' or 'good' for adequate bowel preparation, and 'fair' or 'poor' for inadequate bowel preparation.[13] The agreed standard for adequate bowel preparation is $\geq$85% in the United States and $\geq$90% in Europe and United Kingdom.[1–5] Colonoscopy was defined as complete if the cecum was reached. Adjusted completion rate was calculated by excluding factors beyond the endoscopists' control and cecal intubation based on reliable landmarks only. The agreed standard for colonoscopy completion rate is $\geq$90% overall.[1–5] Ileal intubation was systematically attempted in all patients with chronic diarrhea. Patients with bloody diarrhea and non-bloody diarrhea were included. Procedures with unavoidable and avoidable failures to reach cecum were excluded. The agreed standard for ileal intubation in patients with chronic diarrhea is $\geq$70%.[14] Polypectomy was routinely performed for all polyps identified with a retrieval of all removed polyps for histological analysis. The agreed standard for complete polypectomy of pedunculated polyps and sessile polyps less than 2 cm is $\geq$80% and for polyp recovery $\geq$90%.[1–5]

The first audit conducted on the completeness of endoscopic procedures was performed in 2003 and was retrospective. EGD completion rate was 86% but endoscopic therapy in patients with EGD-gastrointestinal bleed was not documented. The quality of colon preparation was not documented either. The crude completion rate was 50% and the adjusted completion rate were not documented nor the ileal intubation in patients with chronic diarrhea. Polypectomy was performed in 50% of patients with detected polyps but the completeness of removal and retrieval of the polyps were not recorded. The audit generally showed a lack of documentation of procedures completion and suboptimal performance in those that were documented.

In view of these deficiencies, a second prospective audit was designed. Procedure completion was monitored and documentation was regularly checked. A database was created for all procedures performed. A standardized data collection form (sheet) was completed after the procedure by each operator. Recorded information for each procedure included completion of procedure, criteria of completion, main reasons for incompletion and future management plan. Data were entered by the secretary. Microsoft Excel was used for storage and analysis of the data. Recorded data included EGD completion, identification of the bleeding lesion, description of bleeding stigmata, method of endoscopic hemostasis if any, success of endoscopic therapy, adequacy of bowel preparation, colonoscopy

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