



Effect of a Surgical Endoscopy Training Program on Postgraduate Daily Practice: Results from a Single-Center

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ABSTRACT

Aim: To evaluate the impact of surgical endoscopy training on the daily practice of post-graduate surgeons.

Method: Surgeons who completed gastrointestinal endoscopy training at Ankara University Faculty of Medicine, Department of General Surgery, Surgical Endoscopy Unit were invited to complete a web-based survey designed to assess the impact of training on post-graduate training.

Results: Of the 43 graduates, 32 (74.4%) completed the survey. All respondents continued to practice gastrointestinal endoscopy. Of the respondents, 19 (59.4%) were of the opinion that earlier training had a significant impact on their practice while 12 (37.5%) felt it had some impact. Furthermore, 20 (62.5%) reported that, post-training, they had experienced an increase in operating on patients for gastrointestinal surgical procedures.

Conclusion: Respondents were of the opinion that surgical endoscopy training had a positive impact on their daily surgical practice. We suggest that evaluation by objective parameters and generalized monitoring of all centers may promote continuous improvement in surgical endoscopy training.

Keywords: Post-graduate training, skill acquisition, surgical endoscopy

Introduction

The aim of gastrointestinal endoscopy training programmes should be to provide essential knowledge and technical skills and develop highly qualified professionals who are capable of performing safe, effective, and well-documented endoscopic procedures. Currently, there is no universal training program across Europe.

In Turkey, surgical endoscopy training is a part of the core education program of surgical residents. However, not all of the training facilities have their own endoscopy units. To provide an educational environment for those who do not have these facilities at their own institutes, beginning in 2009, the Turkish Surgical Association established the Surgical Endoscopy Training program for the surgeons. Up to date forty-one centers across Turkey are certified to

provide practical education in surgical endoscopy. A list of these centers can be found on the website of the Turkish Surgical Association.¹

This program aimed to educate surgeons willing to learn surgical endoscopy or renew and improve their skills. According to the Turkish Surgical Association, this program includes a minimum of three months of full-time participation, including theoretical lectures, a minimum of 200 endoscopy and colonoscopy procedures performed under supervision, and success in the written examination at the end of the program. This surgical endoscopy training aims to develop surgeons who can identify gastrointestinal lesions, obtain proper tissue samples, and utilize some therapeutic interventions.²

Ankara University Faculty of Medicine, Department of General Surgery, is one of these forty-one centers and



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actively continues the training of its own and other centers' trainees. This study aimed to evaluate the impact of surgical endoscopy training on the daily practice of post-graduate surgeons.

Materials and Methods

In order to evaluate the effect of training on post-graduate practice all trainees who graduated from our center were invited to complete a web-based survey. At the time of writing, forty-three trainees graduated from Ankara University surgical endoscopy training program. The survey did not include any patient data. The complete survey can be seen as supplementary material.

All of the trainers were senior faculty members, routinely perform both diagnostic and therapeutic interventions, and actively participate in endoscopy training. At the beginning of the training program, theoretical lectures were given. Subsequently, all trainees start to perform endoscopic interventions under the supervision of a senior faculty member.

The Ankara University Institutional Ethics Committee approved the study (approval number: 15-307-21).

Statistical Analysis

No statistical analysis performed due to the nature of the study. All data given as numbers and percentages.

Results

A total of 43 students had graduated from the course and of those 32 (74.4%) completed the survey. Participants were currently working in: university hospital (n=9, 28.1%); education and research hospital (n=7, 21.9%); government hospital (n=5, 15.6%); and private hospital (n=11, 34.4%). Seventeen (53%) continued to perform endoscopy and colonoscopy >5 years after completion of training. Of the 32, 22 (71%) did not have any experience of endoscopic procedures prior to attending the training program but after completion, all of the participants began to perform routine endoscopy/colonoscopy at their own institutes. Moreover, 24 (66.7%) were executives of their respective endoscopy units at the time of the survey.

Endoscopic procedures constituted <20% of the daily activity of 15 (46.5%), between 20-40% of the daily activity of 11 (34.4%), >40-60% of the daily activity of 4 (12.5%) and >60% of the daily activity of two (6.25%). Proportion of daily activity taken up by endoscopic procedures is shown in Figure 1.

Fourteen (43.75%) reported that they performed 1-19 gastroscopies, while eleven (34.4%) performed 20-39 and seven (21.9%) performed >40 gastroscopies in the month prior to survey completion. In terms of colonoscopies, these figures were twenty (62.5%) performed 1-19, eleven

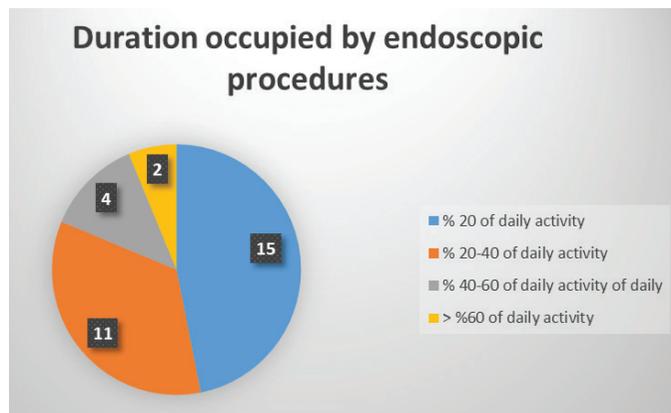


Figure 1. Proportion of daily activity taken up by endoscopic procedures of the respondents

(34.4%) performed 20-39 and on (3.1%) performed >40 colonoscopies. The number of procedures performed by participants at their institutes in the month preceding the survey is shown in Table 1.

During colonoscopy, the rate of cecal intubation was reported to be >80% by 22, (71%) graduates and 60-80% by 5 (16%) graduates. The mean process duration reported by participants is shown in Figure 2.

Respondents were also asked to report on therapeutic procedures performed. In terms of polypectomies performed in the month prior to the survey, 18 (56.25%) performed 1-9, 9 (28.1%) performed 10-29, 2 (6.25%) performed 30-50 and 3 (9.4%) performed >50 in the preceding month. Participants' average monthly therapeutic procedure numbers are given in Table 2.

Twelve (37.5%) participants had experienced a complication during practice, including perforation, bleeding, and oropharyngeal trauma. Twenty (62.5%) reported that they had an increase in gastrointestinal surgery rates and patient numbers after endoscopy/colonoscopy training while 11 (34.4%) said the training course had made no difference to the numbers of cases they dealt with (Figure 3A, B). Nineteen (59.4%) felt that surgical endoscopy training had made a significant impact on their daily practice while twelve (37.5%) felt it had made some difference to their daily practice. Encouragingly, all of the participants strongly recommended expanding surgical endoscopy training and expressed the opinion that all surgeons should learn to perform gastrointestinal endoscopy, at least for diagnostic purposes.

Discussion

Surgical endoscopy is a central element of both surgical training and practice. Unfortunately, in Turkey every surgery department does not have its own endoscopy unit so not all surgeons receive endoscopy training during residency.³

Table 1. Number of procedures performed by participants at their own institutes in the month preceding the survey

Number of procedures	Number of participants		
	Gastroscopy	Rectosigmoidoscopy	Colonoscopy
1-19	n=14	n=27	n=20
20-39	n=11	n=5	n=11
>40	n=7		n=1

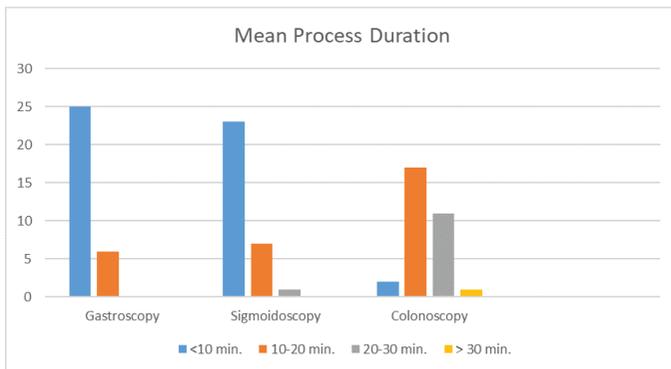


Figure 2. Mean process duration

Table 2. Average monthly therapeutic procedure numbers performed by respondents at their own institutes

Number of procedures	Number of participants		
	Polypectomy	Foreign body retrieval	Hemostasis
1-10	n=18	n=31	n=28
10-30	n=9	-	n=3
30-50	n=2	-	-
>50	n=3	-	-

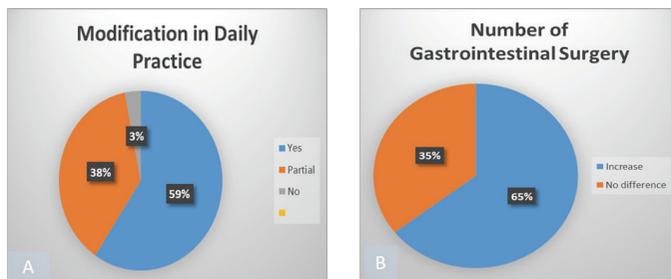


Figure 3. A) Effect of surgical endoscopy training on daily practice, B) Effect of surgical endoscopy training on gastrointestinal surgery cases

Establishing a proper environment for surgical endoscopy training has great importance, especially for surgeons who did not have the chance to learn gastrointestinal endoscopy practice during residency and also for those who are willing to renew their knowledge and improve skills. These training facilities may increase the number of surgeons who can perform high-quality endoscopic interventions.

Historically, the learning curve for gastrointestinal endoscopy only focused on procedural volume and there was great variability in terms of required minimum procedure numbers to be considered experienced in a procedure. These numbers have been revised over time. For example, for competence in colonoscopy the American Society for Gastrointestinal Endoscopy revised the minimum required number from 100 to 275 in their guidelines published in 1998 and 2017, respectively.^{4,5} These numbers are lower for gastroscopy.⁵ These numbers also vary by expert society guidelines and from nation to nation.^{6,7} To date there is no current consensus on the minimum number of procedures. However, it is clear that only the number of procedures cannot reflect the competence of an intervention as personal skill of the practitioner and attitude of trainees attending training may also affect skill acquisition. Competence must be determined by direct observation and objective criteria.^{5,8,9} One of the limitations of this study is that it lacks any objective measurement of practice, in terms of both actual as opposed to reported procedures and, most importantly, clinical outcomes. A second limitation is inherent in the design as this was a “web-based retrospective survey”. It is notable that all of the respondents have the opportunity and continue to perform gastrointestinal endoscopy after proper training and most felt strongly that training had contributed positively to their daily practice. Moreover, six (18.75%) had established new endoscopy units or reactivated former units in their hospitals. Increasing the number of well-trained surgical endoscopists has a crucial role, especially in rural areas where access to a gastroenterologist is limited. Surgeons who are capable of performing emergency endoscopic procedures can play a critical role, especially in these areas.³ Additionally, colorectal cancer is the third most common malignancy in Turkey, and a population-based colorectal cancer screening program from the Turkish Ministry of Health recommends colonoscopy, beginning from 50 years old and repeated every 10 years up to the age of 70 years for average-risk individuals.¹⁰ As screening programs for colorectal cancer have been proven to reduce mortality, access to a gastroenterologist, especially in rural areas, can be problematic and cause reduced screening rates or longer waiting times.^{11,12} After proper gastrointestinal endoscopy training, surgeons, and especially those working

in rural areas, may help to meet this demand and play a role in effective colorectal cancer screening.

However, to be a competent training center the quality of the training provided must be confirmed and regularly monitored through clear documentation of the clinical results, adherence to quality metrics, and the efficiency of these programs.¹³ There is no doubt that, if the postgraduates do not perform endoscopic procedures with minimum quality requirements, then the training program is redundant. This survey showed that a the majority of trainees continued to perform surgical endoscopy, which may be an indicator of the effectiveness of the program. We believe that the most important result of this study, besides numeric data, is that most of the graduates continued to perform routine endoscopic procedures in their daily practice, which suggests that the program produced confident graduates. Of course, as this was a single-center survey, there is a need to investigate the results of the other centers and their graduate surgeons. To this end, some objective measurement is necessary in terms of case numbers, variability, duration of intervention and complication rates and final clinical outcomes.

Conclusion

We believe that proper surgical endoscopy training must be a part of the core education of all general surgeons. This study has shown that in this survey, education was reported to have a positive impact on daily surgical practice. To confirm these findings, objective metrics to measure course graduate performance would be required and would also aid in monitoring the graduates of all centers. Development of these metrics would also result in the ability to provide and promote continuous professional improvement for all gastrointestinal endoscopists.

Ethics

Ethics Committee Approval: The Ankara University Institutional Ethics Committee approved the study (approval number: İ5-307-21).

Informed Consent: None applicable as no patient data used for the study.

Peer-review: Externally peer-reviewed

Authorship Contributions

Concept: M.A.K., C.A., B.E., T.E., Design: M.A.K., C.A., B.E., T.E., Data Collection or Processing: T.E., A.E., A.S.,

Analysis or Interpretation: T.E., A.E., A.S., Literature Search: T.E., A.S., A.E., B.E., C.A., M.A.K., Writing: T.E., C.A., M.A.K.

Conflict of Interest: No conflict of interest was declared by the authors.

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