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How to implement an enhanced recovery programme after colorectal surgery?

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ABSTRACT

Introduction: Although the concept of enhanced recovery after surgery was introduced more than 20 years ago, its implementation in daily practice still remains difficult.

Results: This article addresses bottlenecks and barriers to the development of enhanced recovery programme (ERP). Barriers to the implementation are multifactorial and are raised by the different actors of these programmes: surgeons, anaesthetists, nurses, patients. Solutions and steps that must be respected to succeed in introducing ERP in an hospital are proposed.

Conclusions: Large-scale implementation of ERP continues to face mainly lack of trust and communication. Solutions exist and are based particularly on team work and interdisciplinary collaboration.

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1. Introduction

In 1995, Henrik Kehlet described the concept of enhanced recovery after colorectal surgery, which he named 'fast track surgery', and reported a median hospital stay of two days after laparoscopic colectomy [1]. Several teams have since applied this philosophy and significantly reduced the length of hospital stay [2–5]. The initial concept of 'rapid' rehabilitation progressively evolved towards improved or 'enhanced' recovery. Currently, the primary motivation lies more in accelerating the recovery of the patient included in this programme than in reducing the duration of hospital stay [6,7]. More importantly, enhanced recovery programme (ERP) after colorectal surgery results in a 40–50% reduction in postoperative general complications without negative impact on surgical complications and on hospital readmission [8,9]. The economic benefits are obvious [10]. Despite these data, implementation of ERP for colorectal surgery still encounters barriers [11–16]. For the year 2014, French Health Insurance reported an average length of stay after colorectal surgery of 15.6 and 11.1 d for hospitals, respectively, not practicing ERP and those practicing it! Meanwhile, certain institutions even offer outpatient laparoscopic colon surgery [17,18]. In this review, we will

attempt to explain these differences and the difficulties in implementing ERP focusing on colorectal surgery.

2. Importance of the adherence to protocols

ERP combines about twenty recommendations [19,20]. It is difficult to determine whether compliance to certain of the ERP items is the cause or the consequence of improved recovery [21]. Nevertheless, it is clear that the greater the adherence to ERP, the greater postoperative recovery is improved, the lower the complications rate, and the length of hospital stay [22,23]. Maintaining a maximum adhesion to the protocol must therefore remain the ongoing mission of the ERP team, especially since this adhesion can decrease over time [24,25].

3. Implementation of guidelines: general considerations

How to implement recommendations and sustain adherence to protocols? The implementation of guidelines into clinical practice can be difficult and must overcome several obstacles [14–16,26,27]. First, recommendations should be based on high-level evidence from the literature and should be

intended to increase safety, reduce risk, and improve clinical outcomes in patients. The editing of recommendations by a group of multidisciplinary experts who evaluate the evidence and clinical relevance ensures credibility. These approaches and procedures were respected by expert surgeons and anesthetists to establish recommendations for ERP after colorectal surgery [20]. Once established and drafted, recommendations should be widely distributed by exploiting communication resources (web, scientific congresses, symposia, etc.) and using marketing tools (summaries, brochures, leaflets, etc.). This information, which is a time-consuming but important step, must be repeated to the various publics concerned.

With this in mind, GRACE (Groupe francophone de Réhabilitation Améliorée après Chirurgie [francophone group for enhanced rehabilitation after surgery], www.grace-asso.fr) was founded. GRACE has adopted the recommendations and adapted them to several surgical domains following the procedures mentioned above and respecting a multidisciplinary approach. GRACE has organized several campaigns, symposia, and local meetings with target audiences to inform, sensitize and convince of the clinical relevance of ERP. Once drafted and distributed, the recommendations should be applied in daily clinical practice. Unfortunately, several barriers then stand in the way of their clinical implementation. Thus, in 2015, a survey by the European Society of Anesthesiologists found that many of their recommendations for the management of severe intraoperative bleeding, yet known by 75% of respondents, were not applied [28]!

4. Barriers to the implementation of ERP protocols

Barriers to the implementation of ERP after colorectal surgery also exist and are multifactorial [11,14–16]. They can be raised by the different actors of these programmes: doctors, nurses, patients, and administration.

Some medical actors criticize the excessive number of directives, the lack of specificity, the standardization of patient's management they regard as singular. The modification of habits firmly anchored in daily practice is probably one of the most stubborn obstacles. Communication problems between the different stakeholders and actors of patient care, the lack of leadership in the medical team also significantly impede the application of ERP.

Paramedical staff attributes the difficulties of adhering to the ERP to a lack of time and human resources. Too rapid turnover of caregivers compromises the maintenance of a sufficient level of education and information, and compliance with recommendations. Finally, compliance with ERP, particularly during the postoperative period, requires the harmonious work of a large number of stakeholders, with consequent dilution of responsibilities.

Cultural and educational considerations of the patients also complicate the implementation of ERP. Their preconceived notions and their reluctance to accelerated postoperative recovery and early hospital discharge are sometimes difficult to overcome.

Finally, the lack of support from the hospital administration (lack of human and material resources, time) is another constraint to the implementation of these clinical pathways (Table 1).

5. Implementation of ERP for colorectal surgery

Several steps must be respected to succeed in introducing ERP in an hospital [12,29,30]. In the light of these observations, GRACE provides a specific, step-by-step implementation approach [31].

5.1. Retrospective evaluation

Before implementing ERP, an overview of the current situation and a retrospective analysis of the last 10–20 patients operated in the institution allow to identify the items to be improved and the

Table 1. Barriers to the implementation of an enhanced recovery programme (ERP) after colorectal surgery.

| |
|---|
| 1. Barriers developed by patients and relatives |
| Resistance to changes, reluctance to any innovation |
| Fear of and reluctance to early feeding and ambulation |
| Fear of early discharge from the hospital |
| Suspiciousness of an approach motivated by economic reasons (need for beds, etc.) |
| 2. Barriers developed by caregivers (doctors, nurses, etc.) |
| Fear of an economical approach |
| Too many recommendations |
| Lack of the specificity of the protocol (each patient is singular!) |
| Resistance to changes of firmly anchored practices and innovations |
| Deficiencies in recent scientific knowledge |
| Lack of motivation and leadership |
| Quick turnover of caregivers (new caregivers ignoring ERP) |
| Conviction that ERP could only be applied to selected patients |
| 3. Barriers due to insufficient resources |
| Lack of documentation about ENP and easily available information for stakeholders |
| Lack of time for information and training sessions of the team |
| Not enough time devoted to therapeutic education of the patient |
| Insufficient time for filling the audit database |
| 4. Barriers set up by the hospital administration |
| Deficit in human resources (referent nurse) |
| Lack of material and financial resources |

gaps to be filled. The use of the free audit software from GRACE available on www.grace-asso.fr facilitates this assessment.

5.2. Team spirit

Team spirit is a key element for the success of ERP. The involvement of different actors at different times of the perioperative care imposes the development of a true team spirit. The quality of care and the risk management associated with care will consequently be improved [32]. This team spirit implies continuous communication and collaboration. The team should ideally be composed of at least one surgeon, one anesthetist, and one nurse. A nurse dedicated to ERP is definitely very effective in implementing ERP [33]. The absence of one of the members of this ideal trio is conceivable, but it will be at the expense of more work to ensure the formation and information of the missing discipline. Lastly, the information and involvement of the other healthcare team members (physiotherapists, dietitians, geriatricians, etc.) and the administration of the hospital must not be neglected.

5.3. The enhanced recovery protocol (ERP)

The ERP must be edited by the ERP team. The protocols proposed by GRACE or ERAS® Society can be used and adapted according to local contingencies. They must be approved by all the concerned medical disciplines. The protocols should be readily available to the different stakeholders involved in the care of patients included in this programme.

5.4. Patient information

The patient is not only at the centre of care, but he becomes an active actor in his care. He must, therefore, know what is expected of him. Therefore, he must be informed of the details of the programme and of his active role. This information must be provided during the preoperative visits by the surgeon, the anesthetist, and the nurse. Oral information will be reinforced by written information. A patient information document (institution specific or GRACE-inspired) should be available. The use of multimedia may be interesting [34]. This information should be repeated postoperatively [35]. For this purpose, a postoperative logbook for the patient is useful to remind him of the instructions.

5.5. Agenda and implementation steps

Implementation is a progressive process. The protocol items that were not met before the decision to implement ERP must be gradually introduced into everyday practice. A specific agenda sets out the different stages depending on the local situation. During a first multidisciplinary launch meeting, the project is presented to the entire team and the new recommendations to be introduced are decided. A second meeting assesses the efficiency of the implementation process, identifies the bottlenecks and sets out solutions to remedy them. The optimization of the protocol and the implementation of the last items are discussed during a third meeting before the end of the first year. During the different stages of implementation, the use of an audit software, such as GRACE-audit, facilitates the evaluation of the activity and provides objective and convincing information to improve the implementation of ERP.

After the first year, the ERP care team must meet at least once a year with an audit presentation for the evaluation of the programme. These annual meetings are necessary to ensure sustainability of the adherence to the protocol. Different surrogate markers of efficacy can be measured: length of hospital stay, degree of implementation, degree of adherence, percentage of patients benefiting from ERP, quality of life of patients after returning home, etc. Making ERP the daily standard of care for all patients must become the final goal.

5.6. Removing bottlenecks and barriers

Team meetings identify barriers to the development of ERP. Solutions for removing them must be found and applied. They involve the appointment of convinced providers and convincing leaders, the development of a strong team spirit, continuous information and training for all members of the healthcare team, and presentation of the results of successive audits. Finally, despite a successful implementation, the vigilance and dynamism of teams even convinced and trained to ERP can dull over time. These meetings are then an opportunity for motivational 'booster shots' for all stakeholders [36].

5.7. GRACE help

GRACE was created to develop the implementation of the ERP on a large scale in the French-speaking countries. To reach its goal, GRACE makes

(www.grace-asso.fr) several tools and information helping hospitals available on its website: protocols, patient information, audit software, bibliography, and a GRACE implementation kit. The members of its board of directors and the members of the GRACE reference centers can travel to the requesting institutions to bring their experience and expertise.

6. Conclusions

While the effectiveness of the ERP in colorectal surgery is based on solid scientific and clinical bases, its application in everyday practice remains limited to certain centers. Large-scale implementation of ERP continues to face mainly lack of trust and communication. Solutions exist and are based particularly on team work and interdisciplinary collaboration. Scholarly societies like GRACE and ERAS[®] Society must also play a facilitating role by providing, among other things, clear and efficient protocols and auditing tools for implementation, but also a permanent assessment of the practice, which is the only guarantee of the sustainability of Enhanced Recovery Programme.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

- [1] Bardram L, Funch-Jensen P, Jensen P, et al. Recovery after laparoscopic colonic surgery with epidural analgesia, and early oral nutrition and mobilisation. *Lancet*. 1995;345:763–764.
- [2] Adamina M, Kehlet H, Tomlinson GA, et al. Enhanced recovery pathways optimize health outcomes and resource utilization: a meta-analysis of randomized controlled trials in colorectal surgery. *Surgery*. 2011;149:830–840.
- [3] Spanjersberg WR, Reurings J, Keus F, et al. Fast track surgery versus conventional recovery strategies for colorectal surgery. *Cochrane Database Syst Rev*. 2011;2011:CD007635.
- [4] Varadhan KK, Neal KR, Dejong CH, et al. The enhanced recovery after surgery (ERAS) pathway for patients undergoing major elective open colorectal surgery: a meta-analysis of randomized controlled trials. *Clin Nutr*. 2010;29:434–440.
- [5] Zhuang CL, Ye XZ, Zhang XD, et al. Enhanced recovery after surgery programs versus traditional care for colorectal surgery. A Meta-Analysis of Randomized Controlled Trials. *Dis Colon Rectum*. 2013;56:667–678.
- [6] Fawcett WJ, Mythen MG, Scott MJ. Enhanced recovery: more than just reducing length of stay? *Br J Anaesth*. 2012;109:671–674.
- [7] Slim K, Amalberti R. Ambulatory colectomy: no innovation without evaluation. *J Visc Surg*. 2015;152:1–3.
- [8] Greco M, Capretti G, Beretta L, et al. Enhanced recovery program in colorectal surgery: a meta-analysis of randomized controlled trials. *World J Surg*. 2014;38:1531–1541.
- [9] Nicholson A, Lowe MC, Parker J, et al. Systematic review and meta-analysis of enhanced recovery programmes in surgical patients. *Br J Surg*. 2014;101:172–188.
- [10] Faujour V, Slim K, Corond P. The future, in France, of enhanced recovery after surgery seen from the economical perspective. *Presse Med*. 2015;44:e23–e31.
- [11] Maessen J, Dejong CH, Hausel J, et al. A protocol is not enough to implement an enhanced recovery programme for colorectal resection. *Br J Surg*. 2007;94:224–231.
- [12] Kahokehr A, Sammour T, Zargar-Shoshtari K, et al. Implementation of ERAS and how to overcome the barriers. *Int J Surg*. 2009;7:16–19.
- [13] Alawadi ZM, Leal I, Phatak UR, et al. Facilitators and barriers of implementing enhanced recovery in colorectal surgery at a safety net hospital: a provider and patient perspective. *Surgery*. 2016;159:700–712.
- [14] Lyon A, Solomon MJ, Harrison JD. A qualitative study assessing the barriers to implementation of enhanced recovery after surgery. *World J Surg*. 2014;38:1374–1380.
- [15] Nadler A, Pearsall EA, Victor JC, et al. Understanding surgical residents' postoperative practices and barriers and enablers to the implementation of an Enhanced Recovery After Surgery (ERAS) Guideline. *J Surg Educ*. 2014;71:632–638.
- [16] Pearsall EA, Meghji Z, Pitzul KB, et al. A qualitative study to understand the barriers and enablers in implementing an enhanced recovery after surgery program. *Ann Surg*. 2015;261:92–96.
- [17] Chasserant P, Gosgnach M. Improvement of perioperative patient management to enable outpatient colectomy. *J Visc Surg*. 2016;153:333–337.
- [18] Gignoux B, Pasquer A, Vulliez A, et al. Outpatient colectomy within an enhanced recovery program. *J Visc Surg*. 2015;152:11–15.
- [19] Gustafsson UO, Scott MJ, Schwenk W, et al. Guidelines for perioperative care in elective colonic surgery: enhanced recovery after surgery (ERAS[®]) Society recommendations. *Clin Nutr*. 2012;31:783–800.
- [20] Alfonsi P, Slim K, Chauvin M, et al. French guidelines for enhanced recovery after elective colorectal surgery. *J Visc Surg*. 2014;151:65–79.
- [21] Slim K, Joris J. The egg-and-chicken situation in postoperative enhanced recovery programmes. *Br J Anaesth*. 2017;118:5–6.

- [22] The impact of enhanced recovery protocol compliance on elective colorectal cancer resection: results from an international registry. *Ann Surg* 2015;261:1153–1159.
- [23] Jurt J, Sliker J, Frauche P, et al. Enhanced recovery after surgery: can we rely on the key factors or do we need the Bel ensemble?. *World J Surg*. 2017;41:2464–2470.
- [24] Gillissen F, Ament SM, Maessen JM, et al. Sustainability of an enhanced recovery after surgery program (ERAS) in colonic surgery. *World J Surg*. 2015;39:526–533.
- [25] Martin D, Roulin D, Addor V, et al. Enhanced recovery implementation in colorectal surgery-temporary or persistent improvement? *Langenbecks Arch Surg*. 2016;401:1163–1169.
- [26] Gagliardi AR, Brouwers MC, Palda VA, et al. How can we improve guideline use? A conceptual framework of implementability. *Implement Sci*. 2011;6:26
- [27] Baron DM, Metnitz PGH, Rhodes A, et al. Clinical guidelines: how can we improve adherence and implementation? *Eur J Anaesthesiol*. 2017;34: 329–331.
- [28] Baron DM, Metnitz PG, Fellingner T, et al. Evaluation of clinical practice in perioperative patient blood management. *Br J Anaesth*. 2016;117:610–616.
- [29] Gotlib Conn L, McKenzie M, Pearsall EA, et al. Successful implementation of an enhanced recovery after surgery programme for elective colorectal surgery: a process evaluation of champions' experiences. *Implementation Sci*. 2015;10:99.
- [30] McLeod RS, Aarts MA, Chung F, et al. Development of an enhanced recovery after surgery guideline and implementation strategy based on the knowledge-to-action cycle. *Ann Surg*. 2015;262:1016–1025.
- [31] Slim K, Delaunay L, Joris J, et al. How to implement an enhanced recovery program? Proposals from the Francophone Group for enhanced recovery after surgery (GRACE). *J Visc Surg*. 2016;153:S45–S49.
- [32] Schmutz J, Manser T. Do team processes really have an effect on clinical performance? A systematic literature review. *Br J Anaesth*. 2013;110:529–544.
- [33] Watson DJ. The role of the nurse coordinator in the enhanced recovery after surgery program. *Nursing*. 2017;47:13–17.
- [34] Hounsome J, Lee A, Greenhalgh J, et al. A systematic review of information format and timing before scheduled adult surgery for peri-operative anxiety. *Anaesthesia*. 2017;72:1265–1272.
- [35] Partoune A, Coimbra C, Brichant JF, et al. Quality of life at home and satisfaction of patients after enhanced recovery protocol for colorectal surgery. *Acta Chir Belg*. 2017;117:176–180.
- [36] Bakker N, Cakir H, Doodeman HJ, et al. Eight years of experience with enhanced recovery after surgery in patients with colon cancer: impact of measures to improve adherence. *Surgery*. 2015;157: 1130–1136.