Journal of Visceral Surgery (2016) 153, 249—252

Available online at ScienceDirect www.sciencedirect.com

Elsevier Masson France EM|consulte www.em-consulte.com/en

ORIGINAL ARTICLE

Post-discharge follow-up using text messaging within an enhanced recovery program after colorectal surgery☆

G. Carrier[a,*], E. Cotte[b], L. Beyer-Berjot[c], J.L. Faucheron[d], J. Joris[e], K. Slim[a], the Groupe Francophone de Réhabilitation Améliorée après Chirurgie (GRACE)

[a] *Service de chirurgie digestive, CHU Estaing, 63003 Clermont-Ferrand, France*
[b] *Service de chirurgie digestive, Hôpitaux Sud, 69310 Lyon, France*
[c] *Service de chirurgie, Hôpital Nord, 13915 Marseille, France*
[d] *Service de chirurgie digestive, CHU de Grenoble, 38700 Grenoble, France*
[e] *Service d'anesthésie, CHU de Liège, 4000 Liège, Belgium*

Available online 8 August 2016

KEYWORDS
Text message;
Colorectal surgery;
Enhanced recovery after surgery

Summary
Introduction: Enhanced recovery after surgery programs (ERP) often lead to early discharge and return to home. In terms of risk management, extended surveillance is recommended. Surveillance using text messages (TM) has been validated for minor operations in ambulatory surgery. The goal of this study was to evaluate the feasibility of home surveillance by TM after colorectal surgery within an ERP.
Methods: This prospective multicenter study involved the University hospitals of Clermont-Ferrand, Grenoble, Marseille and Lyon Sud between November 2014 and September 2015. All patients underwent colorectal surgery within an ERP. Post-discharge, patients received TM (4 simple questions with regard to pain, bowel movements, temperature and phlebitis) on days 1, 3 and 5. If there was abnormal or lack of response, an automatic alert was sent to the attending physician via Internet and the patient was contacted immediately.
Results: One hundred and eleven patients were included. Responses were obtained within a median of 12 (1—422) minutes, and 90% of patients answered all TM. There were 48 alerts: 56% because of pain and 40% due to absence of response to the TM. Alerts led to in-hospital care for

☆ This paper was presented at the 11th Francophone Congress of Digestive and Hepatobiliary Surgery (Marne-la-Vallée, France, November 2015). The work was awarded ''Prix de la maîtrise des risques en chirurgie 2015'' by the Académie Nationale de Chirurgie (dotation SHAM).

* Corresponding author at: Service de chirurgie digestive, unité de chirurgie ambulatoire, CHU Estaing, 1, place Lucie-Aubrac, 63003 Clermont-Ferrand, France.
E-mail address: kslim@chu-clermontferrand.fr (G. Carrier).

http://dx.doi.org/10.1016/j.jviscsurg.2016.05.016

4% of patients including three re-hospitalizations and two unplanned re-operations. The median satisfaction score (85% of patients responded) was 5 on a scale of 1 to 5.
Conclusion: This study suggests the possibility, as for ambulatory surgery, to use test messaging for post-discharge home surveillance for patients undergoing colorectal surgery within an ERP.

Introduction

The enhanced recovery after surgery program (ERP) is a set of common everyday perioperative care elements, formerly referred to as ''fast track surgery'' [1]. ERP management focuses on reduced morbidity and better-quality convalescence. In addition to these advantages [2], ERP most often leads to shortened hospital stay, and raises the question of postoperative surveillance at home, within the framework of post-surgical risk management. Just as for ambulatory surgery where patients are contacted the day after surgery by a nurse, it is important to set up a system for postoperative surveillance in this setting as well.

Text messaging a simple and rapid means for close and repeated postoperative contact. According to the French Regulatory Authority of electronic and postal communications [Autorité de Régulation des Communications électroniques et des Postes (ARCEP)], 79.9 million subscriber identity module (SIM) cards were in service in France late 2014 [3]: i.e. since the population of France was 66.259 million, this penetration rate of over 100% attests to the wide accessibility of mobile telephones today. There are several examples in medicine where TM have proven their utility. Text messages (TM) are used for therapy education for chronic diseases such as diabetes [4], improved observance of antiretroviral treatments [5] as well as efficient reminders for medical appointments [6,7], or, again, to encourage smoking cessation [8]. Use of TM is regarded as an alternative to telephone calls for surveillance after ambulatory surgery and short-stay surgery by the Fédération de Chirurgie Viscérale et Digestive (FCVD) and the Groupe Francophone de Réhabilitation Améliorée après Chirurgie (GRACE) [9]. Within the framework of postoperative follow-up, studies have shown promising results for minor [10] and ENT surgery (evaluation of post-tonsillectomy pain) [11]. To the best of our knowledge, there are currently no studies that have evaluated an at-home TM surveillance system after major surgery.

The goal of this study was to evaluate the feasibility of home surveillance by TM after colorectal surgery within the framework of an ERP.

Materiel and methods

Study design

This was a prospective multicenter study, performed in the University Hospitals of Clermont-Ferrand, Grenoble, Marseille and Lyon Sud between November 2014 and September 2015. Patients were included if they underwent colorectal surgery (colonic or rectal cancer, chronic inflammatory disease, endometriosis or complicated sigmoid diverticular disease), had access to a mobile telephone, and were familiar with the use of TM. There was no age limit as long as the patients accepted inclusion in the study. All patients were in an ERP according to the recommendations published by GRACE (available on line at: http://www.grace-asso.fr).

Study protocol

Before discharge (decided based on objective criteria according to enhanced recovery programs), all patient were given oral and written instructions explaining the follow-up program in detail. Inclusion to the study was decided on the day of discharge: the patient's telephone number was entered on a protected page on the Internet site (https://www.memoquest.com/) managed by the Calmedica Society, Paris. Patients were then followed at-home by TM. Five questions were sent out at 10 AM the day after discharge (D + 1), then at D + 3 and D + 5. The five questions were explained in detail orally to the patients as well as on the information sheet. The appropriate answers based on patient symptomatology were also fully explained (Table 1). The TM questions concerned:

- body temperature;
- pain (scored on a scale of 0 to 10);
- signs of clinical bowel obstruction;
- signs/symptoms of venous thromboembolic disease (VTED);
- the absence of all these symptoms.

Table 1 Details of TM.

If your temperature is above 37 °C simply answer the 3 letters TEM	TEM (upper or lower) or no answer
Do you have a stomachache or sore scar? Measure your pain on a scale of 0 to 10 and just answer a number	A number between 0 and 10
Do you have vomiting or a gas barrier? If yes, simply answer the 3 letters DIG	DIG (upper or lower) or no answer
Do you have pain in the calf or chest, palpitations, or dizziness? If yes, simply answer the 3 PHP letters	PHP (upper or lower) or no answer
If you have any of these symptoms, simply answer NO	NO (upper or lower) or no answer if you answered TEM, DIG, PHP or TEM in one of the previous TM