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Press review

C. Mariette[a,*], S. Benoist[b]

[a] *Service de chirurgie digestive et générale, hôpital Claude-Huriez, CHRU, place de Verdun, 59037 Lille cedex, France*
[b] *Service de chirurgie digestive, hôpital du Kremlin-Bicêtre, 78, rue du Général-Leclerc, 94275 Le Kremlin-Bicêtre, France*

Value of chewing gum after laparoscopic colorectal resection in early recovery programs: randomized clinical trial

Shum NF, Choi HK, Mak JC, et al. Randomized clinical trial of chewing gum after laparoscopic colorectal resection. Br J Surg 2016;103:1447—52.
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Background

Chewing gum may enhance intestinal motility after surgery. This trial studied whether chewing gum could lead to a further reduction in ileus in patients who had a laparoscopic colorectal resection and followed an enhanced recovery programme.

Methods

Patients undergoing laparoscopic colorectal resection were randomized to a control or intervention group. Patients in the control group received a standardized recovery programme. Patients in the intervention group were, in addition, given chewing gum three times daily from day 1 until discharge. Primary outcome measures were time to first flatus and first bowel motion. Time to feeling hungry and hospital stay were secondary outcome measures.

Results

Forty-one patients were randomized into each group. Thirty-seven patients underwent rectal resection and 45 had a colonic resection. Time to passage of flatus was shorter (18 h versus 34 h; $P = 0.007$), first bowel motion occurred earlier (19 h versus 44 h; $P = 0.001$) and time to feeling hungry was earlier (16 h versus 25 h; $P = 0.001$) in the intervention group. There was no difference in the duration of hospital stay (5 days in the intervention group versus 5.5 days in the control group). Subgroup analyses revealed that the benefits of chewing gum were clearer in patients who had a colonic resection, with a shorter time to first flatus (20 h versus 35 h; $P = 0.043$), first bowel motion (19 h versus 53 h; $P = 0.014$) and feeling hungry (14 h versus 40 h; $P = 0.001$). No adverse events were attributed to chewing gum.

Conclusion

Chewing gum is a simple intervention that speeds intestinal transit in patients managed with a recovery programme after laparoscopic colorectal resection.

Comments

1. From a methodological point of view, it is surprising that the authors did not analyze their results with intention to treat. Effectively, four patients who had postoperative complications were withdrawn after randomization. It would have been interesting to know how long the first bowel movement took in these four patients.
2. Of note, had a third group with placebo been included in this trial, the authors could have determined if it was the action of chewing or the components of the chewing gum, such as sorbitol, that operated on intestinal transit. The main hypotheses advanced are that the action of chewing stimulates the vagal nerves, saliva and pancreatic juice secretion, and that their actions are responsible for earlier return of transit.
3. Between 2000 and 2010, many studies have suggested using chewing gum in open colorectal surgery. However, this recommendation has not been followed much since the advent of laparoscopy and early recovery programs. This trial opens the debate again, inasmuch as the method is simple and inexpensive.

References

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[3] World J Surg 2012;36:407—14.

French multicenter controlled trial comparing enteral nutrition alone versus total parenteral nutrition in patients undergoing pancreatoduodenectomy

Perinel J, Mariette C, Dousset B, et al. Early enteral versus total parenteral nutrition in patients undergoing

* Corresponding author.
E-mail address: christophe.mariette@chru-lille.fr (C. Mariette).

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pancreaticoduodenectomy: a randomized multicenter controlled trial (Nutri-DPC). Ann Surg 2016;264:731—7. http://dx.doi.org/10.1097/SLA.0000000000001896

Objectives

The aim of this study was to compare nasojejunal early enteral nutrition (NJEEN) with total parenteral nutrition (TPN), after pancreaticoduodenectomy (PD), in terms of postoperative complications.

Background

Current nutritional guidelines recommend the use of enteral over parenteral nutrition in patients undergoing gastrointestinal surgery. However, the NJEEN remains controversial in patients undergoing PD.

Methods

Multicenter, randomized, controlled trial was conducted between 2011 and 2014. Nine centers in France analyzed 204 patients undergoing PD to NJEEN ($n = 103$) or TPN ($n = 101$). Primary outcome was the rate of postoperative complications according to Clavien-Dindo classification. Successful NJEEN was defined as insertion of a nasojejunal feeding tube, delivering at least 50% of nutritional needs on PoD 5, and no TPN for more than consecutive 48 hours.

Results

Postoperative complications occurred in 77.5% [95% confidence interval (95% CI) 68.1—85.1] patients in the NJEEN group versus 64.4% (95% CI 54.2—73.6) in TPN group ($P = 0.040$). NJEEN was associated with higher frequency of postoperative pancreatic fistula (POPF) (48.1% vs. 27.7%, $P = 0.012$) and higher severity (grade B/C 29.4% vs. 13.9%; $P = 0.007$). There was no significant difference in the incidence of post-pancreatectomy hemorrhage, delayed gastric emptying, infectious complications, the grade of postoperative complications, and the length of postoperative stay. A successful NJEEN was achieved in 63% patients. In TPN group, average energy intake was significantly higher ($P < 0.001$) and patients had an earlier recovery of oral feeding ($P = 0.0009$).

Conclusions

In patients undergoing PD, NJEEN was associated with an increased overall postoperative complications rate. The frequency and the severity of POPF were also significantly increased after NJEEN. In terms of safety and feasibility, NJEEN should not be recommended.

Comments

1. The results of the present trial are contrary to those of two earlier trials and most of the current recommendations concerning the peri-operative management of pancreatoduodenectomy for cancer [1—3]. Notwithstanding, the methodology is rigorous and this trial, unlike the two others, is multicentric and therefore the results are more easily reproducible.
2. Mortality and morbidity were more prominent in EEN alone, essentially related to a markedly higher rate of POPF. The two groups were comparable concerning most of the recognized risk factors such as malnutrition, the type of anastomosis, and pancreatic parenchyma texture. Conversely, no information was available concerning the use of prophylactic somatostatin analogues.
3. The inclusion of an early recovery program was not mentioned; this could have influenced the tolerance and perhaps the innocuity of EEN. Moreover, within the framework of an early recovery program, a third arm, including patients with non-artificial oral feeding, would have been of interest.
4. Subgroup analysis to know whether EEN had the same deleterious effects on both pancreatico-gastrostomy and pancreatico-jejunostomy might have had some added value.

References

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[3] World J Surg 2013;37:240—58.

■ Value of peri-operative hydrocortisone in high-risk patients undergoing pancreatoduodenectomy: results of a randomized controlled trial

Laaninen M, Sand J, Nordback I, et al. Peri-operative hydrocortisone reduces major complications after pancreaticoduodenectomy: a randomized controlled trial. Ann Surg 2016;264:696—702. http://dx.doi.org/10.1097/SLA.0000000000001883

Objectives

The aim of this study was to study whether post-pancreaticoduodenectomy complications (PPDC) in high-risk patients can be reduced with hydrocortisone.

Background

Soft pancreas is a well-known risk factor for PPDC. Previously, we have shown that patients with > 40% acini in the pancreatic transection line are most prone to PPDC. Recent studies have demonstrated that surgical trauma leads to inflammation of the pancreatic remnant, which precedes PPDC.

Methods

On the basis of power analysis, randomized controlled trial (RCT) (Clinicaltrials.gov NCT01460615), 155 patients (February 2011—May 2015) scheduled for pancreaticoduodenectomy were randomized to intravenous (i.v.) treatment with hydrocortisone 100 mg or placebo. All patients received the first dose at the induction of anesthesia. During the operation, the percentage of acini was calculated from pancreatic transection line frozen samples by a pathologist. As planned, only the high-risk patients with > 40% acini ($n = 62$) continued in the study to receive in total 8 doses of randomization-based hydrocortisone/placebo every 8 hours. Primary endpoints were urine trypsinogen positive days and overall complications (Clavien-Dindo III—IV). Postoperative pancreatic fistulas (POPFs), post-pancreatectomy hemorrhage (PPH), and delayed gastric emptying (DGE) were also graded.

Results

Hydrocortisone treatment did not alter trypsinogen release (2 or more positive days 46% vs. 50%), but it significantly reduced overall complications compared with placebo in the high-risk patients (18% vs. 41%; $P < 0.05$; Clavien-Dindo III—IV). Also, clinically significant POPF (11% vs. 27%), PPH (14% vs. 24%), and DGE (29% vs. 44%) tended to be lower in the hydrocortisone group. Ninety-day mortality was zero.

Conclusions

This RCT shows that in high-risk patients, overall PPDC can be significantly reduced with hydrocortisone treatment. Inflammation may be an important mediator of PPDC.

Comments

1. The methodology of this trial is somewhat surprising: (i) it would have been preferable to perform the analysis with intention to treat, then per protocol, in patients with a low risk for postoperative pancreatic fistula (POPF), rather than eliminating more than half of the patients