Australian Critical Care 28 (2015) 208–213

Contents lists available at ScienceDirect

Australian Critical Care

journal homepage: www.elsevier.com/locate/aucc

Research paper

Changing clinical guidelines from delayed to early aperient administration for enterally fed intensive care patients was associated with increased diarrhoea: A before-and-after, intention-to-treat evaluation

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ARTICLE INFORMATION

Article history:
Received 6 October 2014
Received in revised form 19 February 2015
Accepted 21 February 2015

Keywords:
Aperients
Laxatives
Diarrhoea
Constipation
Intensive care

ABSTRACT

Background: The 14-bed intensive care unit of a tertiary referral hospital adopted a guideline to start docusate sodium with sennosides when enteral nutrition was started. This replaced a guideline to start aperients after 24 h of enteral nutrition if no bowel action had occurred. We sought to determine the effect of this change on the incidence of diarrhoea and constipation in intensive care.

Methods: Retrospective audit of the medical records of consecutive adult patients admitted to intensive care and given enteral nutrition, excluding those with a primary gastrointestinal system diagnosis, between Jan–Aug 2011 (the delayed group, $n = 175$) and Jan–Aug 2012 (the early group, $n = 175$). The early aperient guideline was implemented during Sep–Dec 2011.

Results: The early and delayed groups were similar in age (median 62 years vs. 64 years; $P = 0.17$), sex (males 65% vs. 63%; $P = 0.91$), and postoperative cases (31% vs. 33%; $P = 0.82$) and had similar proportions who received mechanical ventilation (95% vs. 95%; $P = 1.00$), an inotrope or vasopressor (63% vs. 70%; $P = 0.17$), renal replacement therapy (8% vs. 10%; $P = 0.71$), opiates (77% vs. 80%; $P = 0.60$), antibiotics (89% vs. 91%; $P = 0.72$) and metoclopramide (46% vs. 55%; $P = 0.11$). A significantly larger proportion of the early group received an aperient (54% vs. 29%, $P < 0.001$) and experienced diarrhoea (38% vs. 27%, $P = 0.04$), but the groups had similar proportions affected by constipation (42% vs. 43%, $P = 0.91$).

Conclusions: Changing guidelines from delayed to early aperient administration was associated with an increase in the incidence of diarrhoea but was not associated with the incidence of constipation. These findings do not support changing guidelines from delayed to early aperient administration.

1. Introduction

Abnormal bowel habit is a common problem for critically ill patients, with constipation estimated to affect more than half these patients[1–5] and diarrhoea approximately a fifth.[5–7] In observational studies of mechanically ventilated patients, constipation was found to be associated with increased duration of mechanical ventilation in the intensive care unit (ICU)[3,4] and with increased ICU mortality, increased ICU length of stay and increased bacterial infection in the ICU.[4] Problems attributed to diarrhoea include dehydration, electrolyte disturbances, skin breakdown, catheter-related infection and an increase in clinical investigations so these issues can be assessed and managed.[6,7] The judicious use of aperients (laxatives) might help to prevent or ameliorate constipation and diarrhoea in ICU patients, but no randomised studies have evaluated aperients in this population and the evidence from non-randomised studies is limited.

A single-hospital before-and-after study found that, following the introduction of a bowel care guideline that included a

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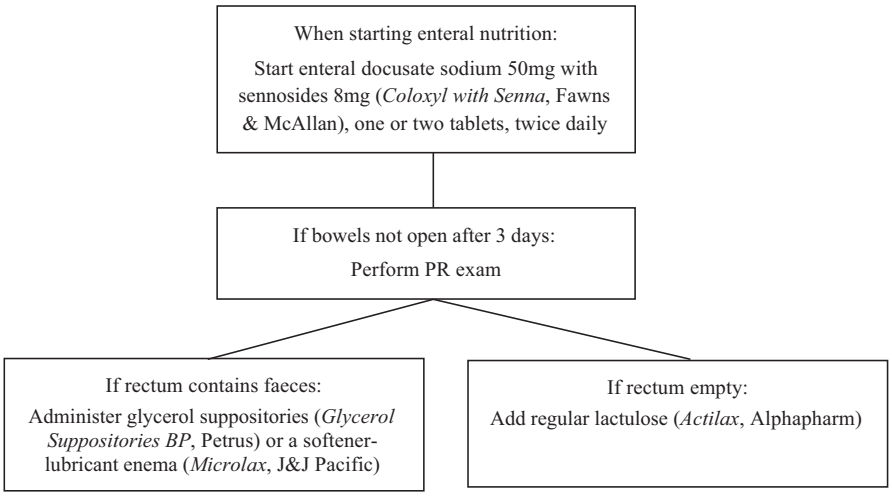
http://dx.doi.org/10.1016/j.aucc.2015.02.002

a. The early aperient guideline (abridged).



b. The delayed aperient guideline (abridged).

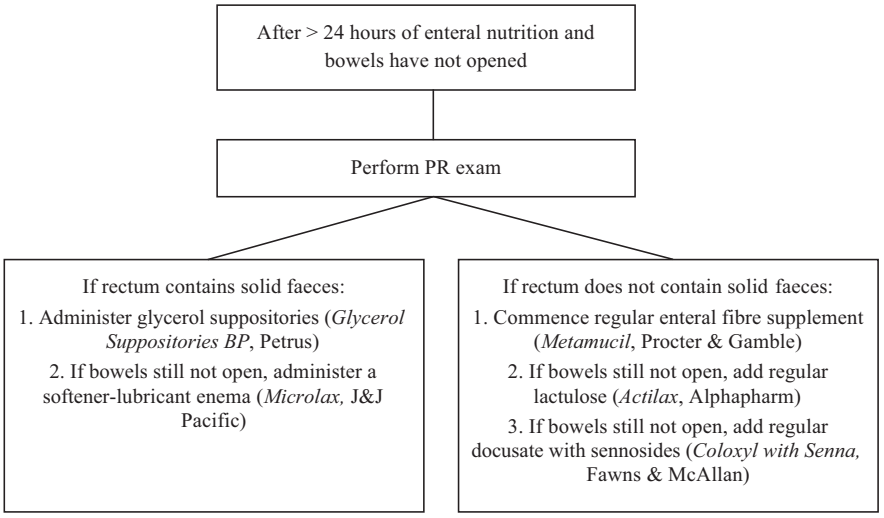


Fig. 1. (a) The early aperient guideline (abridged). (b) The delayed aperient guideline (abridged).

recommendation to commence aperients when enteral nutrition commenced, the incidence of diarrhoea in ICU was lower.[7] Unfortunately though, neither the treatments the patients received (such as the aperients administered) nor the incidence of constipation were reported. A more recent before-and-after study across three ICUs evaluated the introduction of a bowel care guideline that included a recommendation to commence an aperient on the day after the day of ICU admission.[5] It found that, under the new guideline, there was a weak trend toward an increase in the early use of aperients but there was no significant change in the incidence of diarrhoea or constipation. More information is needed to understand the role of aperient administration in intensive care.

In 2011 the ICU of a tertiary referral hospital adopted a guideline that advised clinicians to administer docusate sodium 50 mg (a stool softener) with sennosides 8 mg (a peristaltic stimulant) (*Coloxyl with Senna*, Fawns & McAllan) one or two tablets, twice daily when enteral feeding started, an approach that could be regarded as 'early' aperient administration. This early aperient guideline replaced a bowel care guideline that recommended the use of aperients if no bowel action occurred after 24 h of enteral feeding, an approach that could be regarded as 'delayed' aperient administration. The two guidelines are shown in Fig. 1. We aimed to compare patients managed under the delayed aperient guideline to those managed under the early aperient guideline with respect to: the timing of aperient administration; the types of aperients administered; the use of other interventions that could affect bowel activity (co-interventions); the incidence of constipation; and the incidence of diarrhoea.

2. Methods

2.1. Setting

The study was conducted at a university-affiliated tertiary referral hospital for adult patients in Melbourne, Australia. Throughout the study period the hospital provided a comprehensive range of medicine and surgery subspecialties, including cardiac surgery and neurosurgery, but did not perform solid organ transplantation, other than renal transplantation, and did not provide major trauma services. The hospital's 14-bed ICU admitted approximately 1 200 patients per year. The project was approved by St Vincent's Hospital Melbourne Human Research Ethics Committee as a quality audit and the requirement to obtain informed consent was waived (Ref.: QA 062/11).