

Current perioperative practice in Canadian vascular surgery

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Background: The Enhanced Recovery After Surgery (ERAS) Society has set out to improve patient recovery by developing evidence-based perioperative practices. Many institutions and other specialties have begun to apply their principles with great success; however, ERAS principles focus mostly on general surgery, and their applicability to other specialties, such as vascular surgery, is less clear. We sought to investigate the current standard of perioperative care in Canadian vascular surgery by assessing surgeons' perceptions of evidence supporting ERAS practices, identifying barriers to aligning them and identifying aspects of perioperative care that require research specific to vascular surgery before they could be broadly applied.

Methods: We administered an online survey with 26 questions to all Canadian Society for Vascular Surgery members.

Results: Respondents varied largely in perioperative practice, most notably in the use of nasogastric tubes, Foley catheters and neck drains. Familiarity with supporting evidence was poor. Approximately half (44%) of respondents were not familiar with contrary evidence, while those who were often perceived institutional barriers to change. Finally, one-third (30%) of respondents felt that relevant evidence did not exist to support changing their practice.

Conclusion: The variability of perioperative practice in Canadian vascular surgery is likely due to multiple factors, including a lack of specific evidence. Further research in areas of perioperative vascular care where the current standard of practice varies most greatly may help improve recovery after vascular surgery in Canada over simply adopting existing ERAS principles.

Contexte : L'Enhanced Recovery After Surgery Society (ERAS) cherche à améliorer la convalescence des patients en mettant au point des pratiques périopératoires basées sur des données probantes. Beaucoup d'établissements et d'autres spécialités ont commencé à appliquer les principes de l'ERAS avec beaucoup de succès, mais ceux-ci visent principalement la chirurgie générale, et leur applicabilité à d'autres spécialités, comme la chirurgie vasculaire, est moins claire. Nous avons cherché à étudier la norme actuelle de soins périopératoires en chirurgie vasculaire au Canada en évaluant les perceptions qu'ont les chirurgiens des données probantes à l'appui des pratiques de l'ERAS et en cernant les obstacles à leur harmonisation et les aspects des soins périopératoires devant faire l'objet d'une recherche particulière à la chirurgie vasculaire avant qu'on puisse les généraliser.

Méthodes : Nous avons mené un sondage en ligne de 26 questions auprès de tous les membres de la Société canadienne de chirurgie vasculaire.

Résultats : La pratique périopératoire des répondants variait considérablement, surtout en ce qui concerne l'usage des sondes naso-gastriques, des cathéters de Foley et des drains de cou. La connaissance des données probantes à l'appui était faible. Environ la moitié (44 %) des répondants ne connaissaient pas bien les données probantes allant à l'encontre de ces pratiques, et ceux qui les connaissaient percevaient souvent des obstacles institutionnels au changement. Enfin, le tiers (30 %) des répondants étaient d'avis qu'aucune donnée probante pertinente ne justifiait un changement de pratique.

Conclusion : La variabilité de la pratique périopératoire en chirurgie vasculaire au Canada est probablement attribuable à de multiples facteurs, y compris le manque de données probantes précises. Des recherches plus poussées dans les domaines des soins vasculaires périopératoires où la norme actuelle de pratique varie le plus pourraient aider à améliorer la convalescence après une chirurgie vasculaire au Canada par rapport à la simple application des principes de l'ERAS.

A growing body of evidence in multiple surgical specialties suggests that the traditional perioperative care of surgical patients needs to be updated.¹ As the evidence supporting updated perioperative management builds, a gap has developed between actual practice and the established best practice from the literature. This gap is evident in a variety of common perioperative management principles.²

Attempts in specialties such as general surgery have been made to create a perioperative practice that reflects current evidence.³⁻⁵ For example, the Enhanced Recovery After Surgery (ERAS) Society was formed to aggregate various evidence–practice gaps into a “multimodal perioperative care pathway designed to achieve early recovery for patients undergoing major surgery.”⁶ The ERAS Society has published 3 specific guidelines for perioperative practice specific to the practice of general surgery.⁷⁻⁹

Unfortunately, evidence specific to the perioperative management of vascular surgery patients is not as well established as it is for their general surgery counterparts.¹ While randomized trials have generally supported the implementation of ERAS concepts in major vascular surgery,^{1,10,11} these trials were relatively small and did not specifically support the individual components of ERAS protocols. Some areas of perioperative practice have been specifically investigated in vascular surgery patients,¹²⁻¹⁵ while many other areas have yet to be individually investigated with robust studies in the vascular surgery literature. As such, these minimally examined areas of perioperative care in vascular surgery present an opportunity to establish directed investigations to guide practice.

To direct future focused investigation in vascular perioperative management we must first understand the current state of practice and surgeons’ impressions of the current evidence. The primary objective of this study was to review the current standard of perioperative care in Canadian vascular surgery. We also assessed the perceptions of evidence in perioperative care and identified barriers to changing perioperative practice.

METHODS

We sent an online survey (Appendix 1, available at canjsurg.ca) to all Canadian Society for Vascular Surgery (CSVS) members, inquiring about specific components of perioperative practices. Four subsequent reminders to participate in the survey were distributed until an insignificant increase in response rate was achieved. Surgeons were asked to describe their perceptions of current evidence in perioperative care and the barriers that limit potential change in their practices. The survey was developed using validated research techniques of surveying physicians,¹⁶ and was reviewed by University of Alberta statisticians for scientific consistency.

The questions in this survey were constructed using the ERAS guidelines as a framework to delineate components of perioperative practice:

Preoperative

- Clear fluids fast before surgery
- Solid food fast before surgery
- Preoperative use of oral bowel preparation
- Use of epidural analgesia

Intraoperative

- Use of abdominal drains

Postoperative

- Use of postoperative nasogastric tubes
- Foley catheter removal, regardless of epidural analgesia
- Use of chewing gum

RESULTS

Of the 135 CSVS members who received the survey, 51 (38%) responded. Figure 1 shows the typical preoperative fasting instructions given to patients. The most common instruction was the traditional guideline of fasting at midnight before surgery. Only 13% of respondents practised in line with the Cochrane Review findings⁵ at the time of our survey; however, 21% of respondents commented that there is a lack of relevant evidence in vascular surgery to support this guideline (Table 1).

The reported use of routine postoperative drains is displayed in Figure 2. While 96% of respondents avoid routine abdominal drainage, drains are more commonly placed in the groin and neck. Figure 3 displays the use of Foley catheters. Although 79% of respondents routinely use Foley catheters while there is epidural analgesia, the majority of those users believe that it is safe to remove Foley catheters during epidural analgesia.

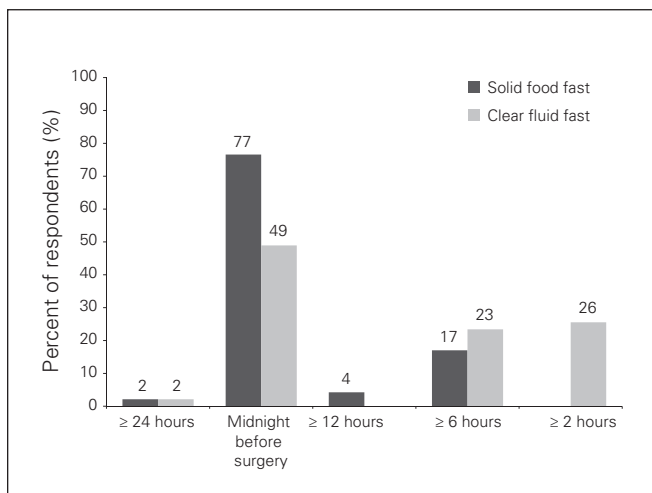


Fig. 1. Preoperative fasting instructions given by respondents to their patients.

We also sought to characterize the perceived barriers to changing perioperative care (Table 1). For each of the perioperative components, the most common response was that there is “no need to change.” An average of 30% of respondents felt that there is a lack of relevant evidence to justify changing their practices. As well, there were significant institutional barriers to changing preoperative fasting timelines and postoperative Foley catheter removal.

Finally, respondents were asked to relate their practices with their understanding of current evidence (Table 2). The most common answer was that respondents were “unaware of evidence contrary” to their practices. Of those who were aware of contrary evidence, respondents were least convinced by evidence surrounding early nasogastric

tube removal and the use of postoperative chewing gum. In addition, respondents were most likely to manage Foley catheters contrary to their belief of opposing evidence.

DISCUSSION

In recent years, the awareness of perioperative research and resulting changes in practice have resulted in similar surveys in other surgical specialties.^{17,18} A common theme of both these previous surveys and ours is variability in the management of perioperative care. Interestingly, this variability is not always confined to the components of perioperative care that have minimal supporting evidence, and may be attributable to multiple external factors.

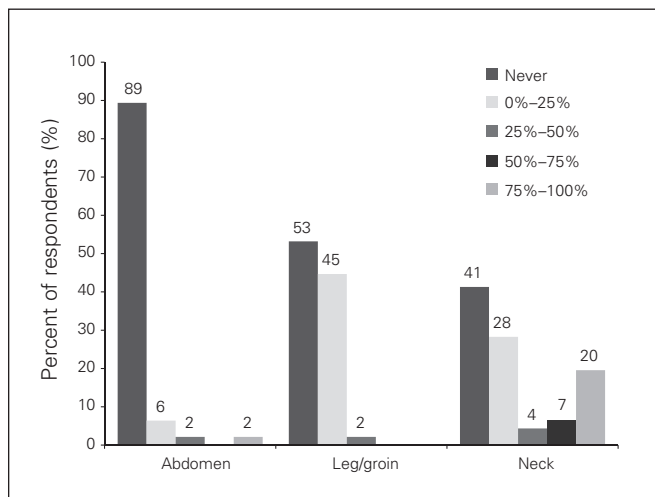


Fig. 2. Estimated frequency of postoperative drain usage for various operative sites.

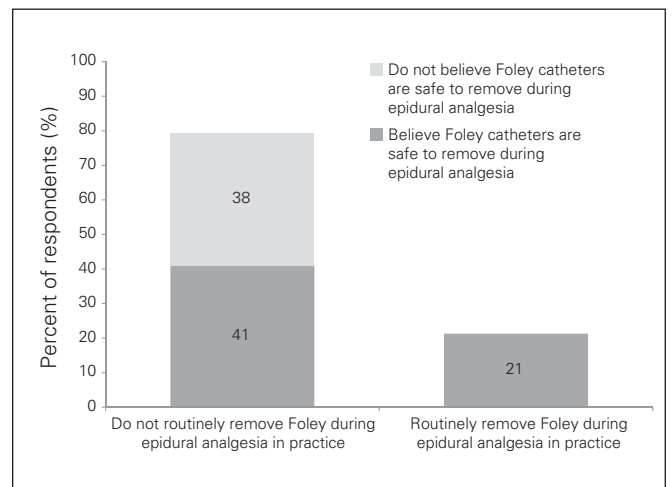


Fig. 3. Foley catheter removal timing, demonstrating breakdown of respondents who believe Foley catheter removal is safe in patients with epidural analgesia.

Component	There is no need to change (%)	Lack of relevant evidence (%)	Lack of anesthesia support (%)	Lack of nursing support (%)	Lack of institutional support (%)
Preoperative fasting timeline	57	21	29	14	14
Drain management	57	36	0	0	0
Nasogastric tube removal	55	33	2	5	5
Foley catheter removal	48	24	26	19	14
Chewing gum	50	36	2	5	5
Average	53	30	12	9	8

Component	Never heard of evidence contrary to my practice (%)	My practice resembles published evidence (%)	Not convinced by evidence contrary to my practice (%)	Convinced by contrary evidence, but don't practice it for various reasons (%)
Preoperative fasting timeline	46	55	5	9
Drain management	44	40	7	2
Nasogastric tube removal	42	22	18	13
Foley catheter removal	40	27	7	22
Chewing gum	49	9	24	7
Average	44	31	12	11

In our survey, the majority of respondents reported routinely avoiding abdominal drainage, which may be a result of convincing evidence over the last 2 decades in general surgery.¹⁹ There is less evidence regarding the routine use of groin and neck drains in any surgical specialty, and the current practice is accordingly variable. In particular, the bimodal distribution of neck drain placement indicates that surgeons are conflicted about their utility. Respondents also identified the management of postoperative nasogastric tubes as being supported by unconvincing evidence, which is reflected in the variability seen in current practice. These results are contrasted by a survey of general surgeons, who use nasogastric tubes less frequently, and are supported by more robust evidence specific to their specialty.^{3,17} The use of both postoperative nasogastric tubes and nonabdominal drains are areas of perioperative management that would therefore benefit from focused research in vascular surgery.

The lack of relevant research, however, was not the only barrier to changing perioperative management. External factors, such as anesthesia, nursing and institutional protocols, were cited as barriers to changing preoperative fasting guidelines and timing of Foley catheter removal. These barriers should not be dismissed, as more than half of the respondents who routinely use Foley catheters during epidural analgesia believe that it is actually safe to remove the catheters. Establishing focused perioperative evidence in these topics and further dissemination of existing evidence may help with advancing institutional change.

Although we have identified multiple components of perioperative practice for which there are barriers to change, many respondents reported that there is no need to change. In addition, the most prevalent barrier reported was a lack of awareness of evidence contrary to current practice. Thus, there is an opportunity to discuss the current evidence for perioperative management in vascular surgery to potentially improve patient care.

CONCLUSION

Perioperative practice in vascular surgery varies nationally, and we have identified multiple trends of practice in vascular surgery that conflict with evidence established in other surgical specialties. Respondents identified the use of postoperative nasogastric tubes and nonabdominal drains as areas of limited relevant evidence in vascular surgery, which would benefit from further investigation. In addition, surgeons perceive multiple external pressures that influence their perioperative management. Components most prominently affected by external pressures include preoperative fasting and postoperative Foley catheter removal timelines. While components of ERAS may promote evidence-based practice and improve patient care in general surgery, broad implementation of a general surgery-based ERAS program in vascular surgery may have negative effects if evidence is not first established and accepted by vascular surgeons.

Affiliations: All authors are from the University of Alberta, Edmonton, Alta.

Competing interests: None declared.

Contributors: M. Rockley and J. Bayne designed the study. M. Rockley acquired the data, which all authors analyzed. All authors wrote and reviewed the article and approved the final version for publication.

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