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Perceptions of the application of fast-track surgical principles by general surgeons

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ABSTRACT

INTRODUCTION Fast-track surgery is a novel approach which uses a multimodal package of changes to traditional surgical care to reduce the stress response evoked by surgery allowing for enhanced recovery times. The depth of understanding and application of fast-track principles to general surgical practice by consultant surgeons is unknown.

MATERIALS AND METHODS 'Core management features' central to published fast-track general surgical studies were identified following a comprehensive Medline literature search. The knowledge and application of these features were examined in a postal questionnaire sent to 116 general surgeons in a single region.

RESULTS Of respondents, 31% indicated they were currently using fast-track surgery (the 'fast-trackers'). The number of fast-track compliant responses was calculated for each consultant (range, 1–12 of 14). Mean scores for 'fast-trackers' of 8.45 (± 2.188) and 'non-fast-trackers' of 6.16 (± 2.352) showed no significant differences ($P > 0.6$). The 'fast-trackers' median estimated length of stay (LOS) was 5 days (inter-quartile range [IQR], 4–7) which was significantly lower than the 7 day (IQR 6–8) LOS estimates given by the 'non-fast-trackers' ($P < 0.01$).

CONCLUSIONS Despite estimating reduced LOS, no significant difference in total fast-track compliant responses was found between the 'fast-tracker' and 'non-fast-tracker' groups. The 'fast-trackers' estimated LOS of 5 days is 2.5 times the 2 day LOS reported in the published fast-track studies. A significant gap exists between the perception and realisation of fast-track methodology amongst general surgeons.

KEYWORDS

Fast-track – General surgery – Length of stay – Questionnaire

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Today's surgeons are encouraged to use critical analysis and evidence-based practice to guide their management decisions. They are asked to challenge the value of 'traditional' surgical care and explore new models in a search to define 'best' practice. Fast-track regimens are one such innovation.[1]

Whereas traditional clinical trials in surgery have focused on examining the effect of altering a single specific management feature (*e.g.* the use or non-use of postoperative nasogastric tubes), fast-track studies have adopted a new approach. They use 'standardised care protocols' to guide the application of a combination of management changes to a single study group. This approach, pioneered by Professor Kehlet in Denmark, is known as the 'multimodal' approach (Table 1).[1,2]

Fast-track surgery claims to quicken the recovery of patients' physiology; which at discharge is argued to be equivalent to that of patients discharged from 'traditional surgical care'. This accounts for the lack of additional post-hospital care used within the multimodal approach.[2]

'Balanced analgesia' is a central feature of fast-track regimens.[3] It is a multimodal approach to managing postoperative pain relief that emphasises the use of epidural analgesia combined with non-opioid systemic analgesia. Through neuraxial blockade of sympathetic outflow and reduced opioid needs, 'balanced analgesia' aims to promote early return of bowel motility in fast-track patients.[3,4]

Most of the fast-track studies in general surgery published todate have been conducted in a small number of centres led by a handful of fast-track enthusiasts. They have, however, demonstrated increased speeds of postoperative recovery which is apparently supported by a reduction in postoperative ileus and hospital stay, with no increased 30-day morbidity.[5–16]

Other than the ERAS (Enhanced Recovery After Surgery) group's on-going studies and audit there are no other large-number, multicentre, randomised clinical trials examining fast-track surgery.[17] Fast-track enthusiasts are clearly convinced of the value of this approach based on evidence from

their own personal series, but if the benefits of fast-track regimens are as persuasive as is claimed, one might assume that these protocols would have been widely adopted by consultant surgeons. Therefore, we were interested to examine the degree to which consultant general surgeons in a single region were correctly applying the principles of 'fast-track' surgery to their current practice.

Materials and Methods

The Cochrane Library and PubMed (1966 to January 2003) were searched using the terms: 'fast-track', 'enhanced recovery' and 'early discharge'. This identified 12 relevant publications employing fast-track protocols in elective, abdominal, general surgical procedures performed under general anaesthetic.[5–16] These studies were found to use 'standardised care protocols' to guide the multimodal approach to patient care. Slight differences in their standardised care protocols were noted; however, a number of 'core' management features were readily identified as being inherent features to the fast-track regimens (Table 1).

A postal questionnaire, examining all the identified core components of fast-track regimens was sent to all the consultant general surgeons in one region (*see* Appendix). At the end of the questionnaire, written comments were invited.

From the 116 consultants canvassed, 60% (70) questionnaires were returned. Of these, 6 (5%) incomplete questionnaires were discarded from analysis.

Table 1 Core features of the multimodal approach to fast-track surgery

Pre-operative care
- Pre-operative assessment
- Pre-operative education regarding expected postoperative recovery rates
- Planning of the appropriate post-discharge support

Peri-operative care – minimisation of the surgical stress response incurred by the procedure
- Afferent blockade of the sympathetic-driven stress response using a high thoracic epidural
- Minimally invasive techniques where appropriate
- Supplementary regional anaesthesia
- Intra-operative normothermia

Modification of postoperative care to promote early return to 'normal' function
- Sparing use of drains, tubes, lines and catheters
- Early removal of drains, tubes, lines and catheters
- Enforced mobilisation on the first postoperative day
- Early oral intake and analgesia
- Routine administration of prokinetics and/or anti-emetics
- 'Balanced' analgesia

Results

Approximately one-third (31%; $n = 20$) answered 'yes' to the first question: 'For elective, single incision, open abdominal, surgical procedures under general anaesthetic, do you apply fast-track principles to your practice?'. These consultants were defined as 'fast-trackers', with the remaining 69% analysed as 'non-fast-trackers'.

Fourteen questions examined the consultant's perceived application of fast-track principles to their current practice. 'Yes' responses indicated management features compliant with the fast-track regimens.

Only 3 of the 14 fast-track questions demonstrated significant differences in the number of 'yes' responses given by the two groups ($P < 0.001$, chi-square test; Fig. 1).

With respect to analgesic practices, 17 of the total respondents indicated that they used balanced analgesia as part of a fast-track regimen; these consultants were classified as the 'users' group. The 'non-users' group consisted of the remaining 47 consultants who did not. Despite this, both groups showed a similar percentage of surgeons who 'insisted on the use of epidural analgesia wherever possible' (53% of users, 62% of non-users); however, significant differences in answering was seen when asked if they 'insisted on the use of a high thoracic epidural whenever possible', with 47% of the user group and 15% of the non-user group saying they did ($P < 0.001$, Fisher's exact test). Other analgesic practices were similar between the two groups (Fig. 2).

In order to determine any overall difference in practice between those surgeons indicating that they used a fast-track regimen and those that did not, the average number of affirmative responses to the 14 questions concerning the use of core fast-track practices was determined for the two groups. The 'fast-trackers' gave a mean of 8.45 ± 2.188 (range, 4–12) positive answers, whilst for 'non-fast-trackers' the mean was 6.16 ± 2.352 (range, 1–12; $P = 0.608$, independent-samples t-test).

In order to identify any potential and perceived impact of fast-track techniques on lengths of patient stay (LOS), the consultants were asked to estimate their current average LOS for 'a typical, uncomplicated case, involving an elective, single incision, open abdominal, surgical procedure under general anaesthetic'. They were then also asked to estimate LOS prior to the evolution of concepts relating to fast-track surgery. The fast-trackers' median estimated lengths of patient stay prior to the evolution of fast-track principles was 8 days (IQR 7–10; mean, 8.0 days; SD 2.5), with their current estimated lengths of stay for patients being 5 days (IQR 4–7; mean, 5.4 days; SD 1.7; $P < 0.001$, paired samples t-test). Despite the LOS estimates prior to the evolution of fast-track principles being similar to the non-fast-

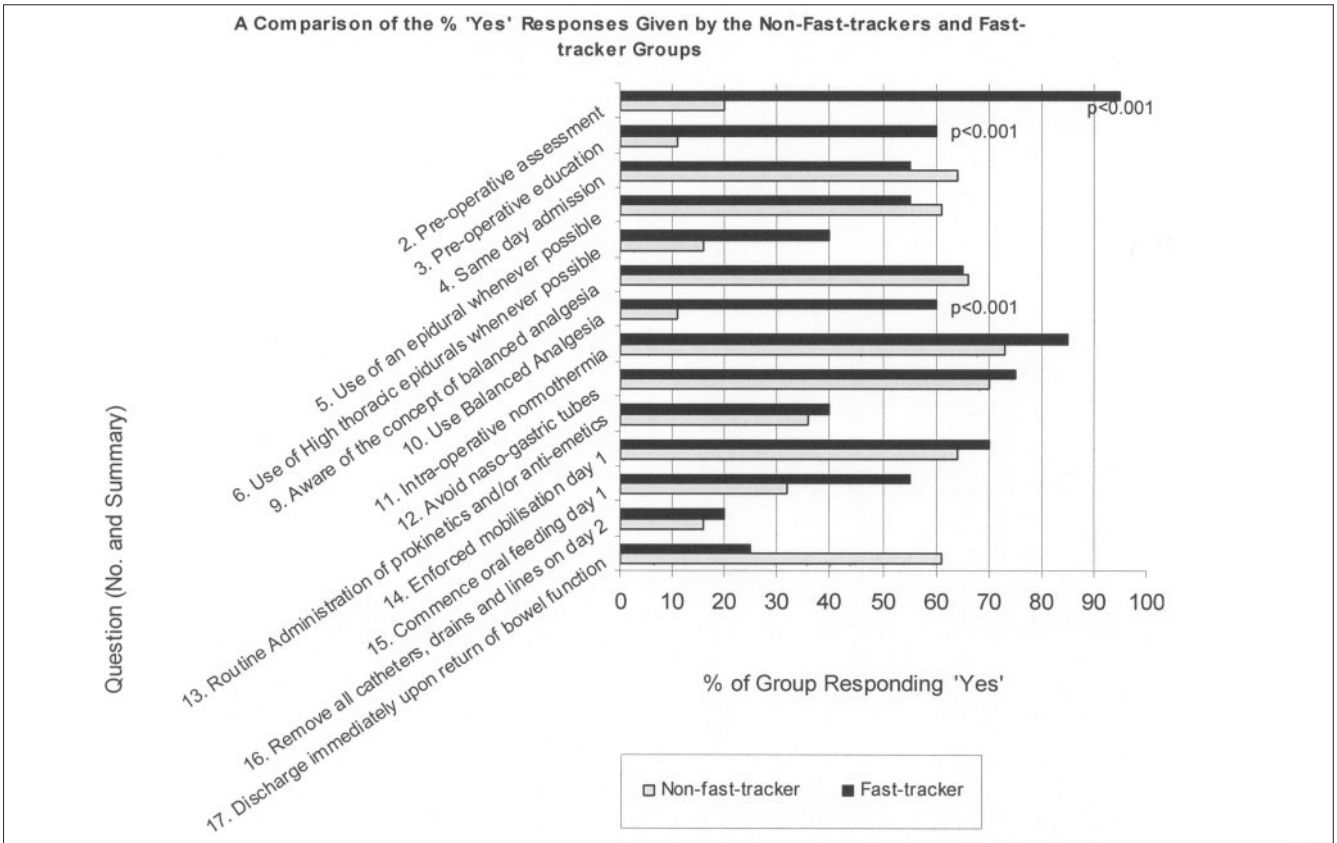

Figure 1 Fast-track compliant responses in the fast-tracker and non-fast-tracker groups.

trackers with a median of 8 days (IQR 7–9.6; mean, 8.0 days; SD 2.1; $P = 0.884$, independent samples t-test); the non-fast-trackers current estimates showed to be significantly higher (median 7 days; IQR 6–8; mean, 7.0 days; SD 1.8; $P < 0.01$, independent samples t-test) than the fast-trackers.

Of the 40 consultants who gave reasons why fast-track principles are not being applied in some centres, half felt 'there is inadequate multidisciplinary and community support', one-third admitted that they had 'never heard of it', and 17% were 'not convinced by the evidence base available'.

Interestingly, no 2 consultants from the 64 who completed a questionnaire gave an identical set of answers for the questions on their current management.

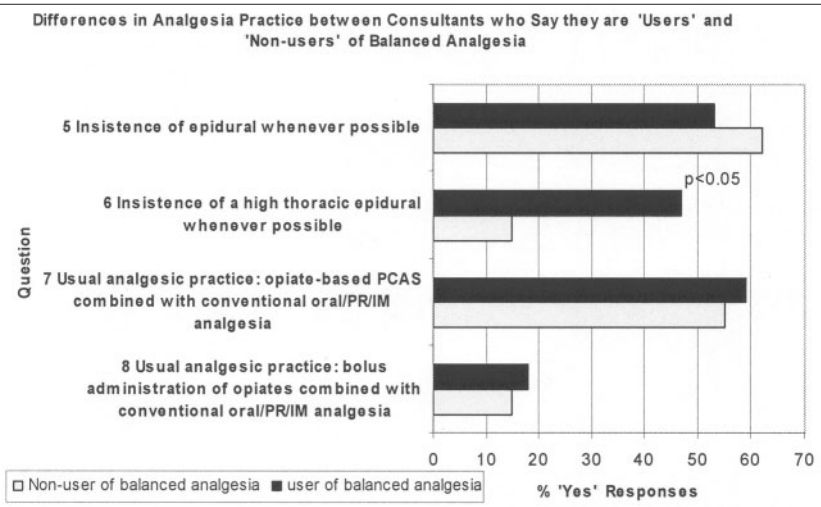

Figure 2 Analgesia practice amongst 'users' and 'non-users' of balanced analgesia.

Discussion

This questionnaire-based investigation highlights the current heterogeneity that exists in the management of surgical patients. The fast-trackers and non-fast-trackers demonstrated little difference in their current practice despite fast-trackers estimating reduced average lengths of stay. The fast-trackers' median LOS estimates of 5 days is still 2.5 times Kehlet's figure of 2 days.[5]

Both the fast-trackers and non-fast-trackers questioned in our study only ever applied some of the core features of the fast-track regimens to their current management. The fast-trackers did appear to fulfil more of the pre-assessment criteria as well as demonstrating an increased use of high thoracic epidurals. However, in the literature studied, the necessity to apply all of the 'core' management features to patient care as a collective package was emphasised in order to maximise the reduction in surgical stress response and return to normal physiology thus enabling early discharge.[1–4] The fact that consultants who identified themselves as fast-trackers were not doing this suggests that they were either basing their concepts of fast-track surgery on alternative definitions, or were perhaps struggling to introduce such a radical package of changes to their practice or had simply misunderstood the fundamentals of Kehlet's fast-track theory.

Conversely some of the consultants with a sound understanding of fast-track may have accurately classified themselves as non-fast-trackers, despite demonstrating comparable management to the fast-trackers, based on their appreciation for the need to adhere to all of the 'core' management features. This would act to reduce differences between the fast-trackers' and non-fast-trackers' answers further.

It is suggested that, in the absence of unquestionable level 1 evidence regarding the safety and efficacy of fast-track packages, consultants may struggle to justify and resource their introduction. The difficulty to introduce all the multimodal changes to practice simultaneously may be further exaggerated by their reliance on the full co-operation and adequate resources of the multidisciplinary team (anaesthetists, nurses, physiotherapists). In these instances, alterations to practice may occur through more insidious, *ad hoc* routes. In this setting, it is possible that the gradual alteration of practice by one surgeon may create a local trend that diffuses through a department or region. This offers further explanation for why there are little demonstrable differences between the way our fast-trackers and non-fast-trackers answered.

Conclusions

There is mounting evidence that fast-track regimens will shape general surgical practice in the future; however, definitive evidence of the safety and efficacy is needed in order to promote their correct application and speedy introduction. If the initial studies are correct, this would allow surgical patients safer operations and earlier recovery times with the possible longer-term benefits of reduced waiting lists and health care costs.

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APPENDIX

POSTAL QUESTIONNAIRE

1. For elective, single incision, open abdominal, surgical procedures under general anaesthetic, do you apply fast-track principles to your practice?	Yes/No
For elective, single incision, open abdominal, surgical procedures under general anaesthetic:	
2. Do you make a pre-operative assessment of patient co-morbidity and social circumstances in order to assess suitability to fast-track surgery?	Yes/No
3. Do your patients receive pre-operative education and instruction based on a fast-track regimen (including length of hospital stay and rehabilitation goals)?	Yes/No
4. Do your patients undergo same-day admission?	Yes/No
5. With regard to intra- and postoperative analgesia, do you insist on the use of an epidural whenever possible?	Yes/No
6. With regard to intra- and postoperative analgesia, do you insist on the use of a high thoracic epidural whenever possible?	Yes/No
7. Is an opiate-based PCAS combined with conventional oral/PR/IM analgesia the commonest method of analgesia administration in your current practice?	Yes/No
8. Is bolus administration of opiates combined with conventional oral/PR/IM analgesia the commonest method of analgesia administration in your current practice?	Yes/No
9. Are you aware of the concept of balanced analgesia?	Yes/No
10. Do you apply it to your practice as part of a fast-track regimen?	Yes/No
11. Do you pay attention to achieving intra-operative normothermia?	Yes/No
12. Do you actively avoid placing nasogastric tubes for early postoperative use?	Yes/No
13. Do you routinely administer prokinetics and/or prophylaxis against nausea and vomiting postoperatively?	Yes/No
14. On the first postoperative day, do you institute enforced mobilisation?	Yes/No
15. On the first postoperative day, do you commence oral feeding?	Yes/No
16. On the second postoperative day, do you remove all catheters, drains and lines?	Yes/No
17. Do you discharge patients immediately upon return of bowel function (based on passage of flatus/stool), and once adequate oral diet and analgesia are achieved?	Yes/No
18. For a typical uncomplicated case, involving an elective, single incision, open abdominal, surgical procedure under general anaesthesia, what would you estimate as your current average length of stay?	
19. For a typical uncomplicated case, involving an elective, single incision, open abdominal, surgical procedure under general anaesthesia, what would you estimate as you estimate as your average length of stay prior to t he evolution of concepts relating to fast-track surgery?	
20. If you are not currently applying fast-track surgery to your practice is that because:	
(i) Never heard of it	_____
(ii) Do not feel that there is adequate multidisciplinary resources and community support for it to be introduced	_____
(iii) Am not convinced by the evidence-base available that it makes safe and effective practice	_____
(iv) Other, please state	_____