

Postoperative Pain and Quality of Recovery – a Quality Improvement Project

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Abstract

Introduction: A good post-operative recovery after day surgery is hard to define. However, the 9 item quality of recovery (QoR-9) score takes a number of factors into consideration and has been validated in day surgery. Pain relief contributes to this and also features prominently in many day surgery guidelines. This pilot study aimed to evaluate the adequacy of pain relief and quality of recovery in a Scottish population.

Method: Adult patients under-going day surgery (including general surgical, urological, gynaecological and orthopaedic procedures) were recruited over a ten-week period. Procedural data was collected from the anaesthesia and recovery charts. Patients were also asked to complete a QoR-9 questionnaire and analgesia requirements on postoperative days (POD) 1 and 3.

Results: 63 patients were recruited and 42 (66.6%) returned their completed questionnaires. Of these, 39 (93%) were given instructions regarding postoperative analgesia. On POD 1 and 3, 37 (88%) and 28 (66.5%) patients respectively, found their analgesia to be effective. The average QoR-9 scores were 15.5/18 on POD 1 and 15/18 on POD 3.

Discussion: Pain is universally ranked highly in importance in post-operative recovery amongst patient groups. However, these results confirm recovery after day surgery may be multifactorial. While there is room for improvement within the management of postoperative analgesia within our population, future research and improvement work can focus on what factors can be improved to contribute to a good postoperative recovery after day surgery.

Introduction

The number and complexity of day case procedures are increasing¹, and effective pain management remains fundamental in the perioperative care and discharge planning for day surgery patients. Guidelines on the provision of day surgery services have been published by a number of organisations including the Association of Anaesthetists of Great Britain and Ireland (AAGBI)² and the Royal College of Anaesthetists (RCOA)³, which reinforces the importance of providing clear instructions on post-operative pain management plans for the patient. Regular audit and review of current practice in each day surgery unit should be encouraged to assess adherence to local protocols and ensure a high quality service.

Post-operative pain remains one of patients' main concerns, and good pain relief has implications on the quality of recovery as it allows earlier mobilisation, reduced complications, fewer interventions by primary care and earlier return to work with physical, psychological and economic benefits. Uncontrolled pain can result in both emotional and physical suffering in the short term, and also increases the risk of developing chronic pain⁴. Residual discomfort has been reported in some cases up to 4 weeks postoperatively⁵.

Pain clearly plays an important part in patient recovery. However, the assessment of pain

remains subjective, and in itself does not describe the impact on quality of life. It is clear that good postoperative recovery depends on more than the return of physiological parameters to normal, and includes functional ability, cognitive recovery and patient satisfaction. The lack of a 'gold standard' definition of quality of recovery and the qualitative nature of these parameters make this inherently difficult to objectively measure. The Quality of Recovery 9 (QoR-9) score has been shown to be useful for assessing overall patient recovery⁶. This was developed by surveying 4 main populations (patients, relatives, medical and nursing staff), and asking them to rate 61 postoperative features. The 9 most highly ranked items were subsequently included in the index score. Each item was then allocated a score of 0–2, giving a maximum score of 18. It has been validated and used in assessing recovery in patients after both major and day case surgery^{6,7}.

We conducted a pilot study to evaluate the adequacy of pain relief and quality of recovery in a Scottish population. As part of the study, we reviewed the adherence of local practice to guidelines on post-operative instructions.

Method

The study protocol was approved by the local research ethics board. Adult patients under-going general surgical, urological, gynaecological and orthopaedic surgery as day case procedures within NHS Tayside were recruited. As this was a pilot study, we aimed to recruit patients over a ten-week period. Informed consent was obtained from all participants.

Information on the type of procedure, anaesthetic, perioperative analgesia requirements (including recovery) and postoperative pain scores were collected by the research team on the day of surgery. Participants were then asked to complete a questionnaire on postoperative days (POD) 1 and 3 to assess their analgesia requirements, pain and QoR-9 scores. These were returned by post after completion. Participants were followed-up by telephone to encourage return rate.

Results

Sixty-three patients were recruited over the ten-week period. Of these, 42 (66.6%) returned their completed questionnaires and were included in subsequent analysis. The patient demographics are shown in Table 1.

Forty out of 42 patients (95%) were discharged home on the day of surgery as planned. One patient lived alone and one patient required supplemental oxygen postoperatively, preventing discharge on the same day.

Discharge

Thirty-six (86%) patients were discharged home with analgesia. Eight (22%) received simple analgesia only (paracetamol +/- ibuprofen) and 28 (78%) received simple analgesia and a weak opioid (Tramadol or codeine). Of the 42 patients who returned their questionnaires, thirty-nine (93%) were given instructions regarding postoperative analgesia for discharge. This information came from 4 different sources: anaesthetists (7, 18%), surgeon (7, 18%), recovery nurse (18, 46%) and ward nurse (31, 79.5%). Fourteen patients (36%) received information from more than one person. Twenty patients (51.5%) received verbal information only, 2 patients (5%) received written information only and 17 patients (43.5%) were given both verbal and written information.

Pain Scores

Pain scores were collected in the post-anaesthetic recovery, and from patient questionnaire on POD 1 and 3 (Table 2).

On POD 1, 30 patients (71.5%) were using their analgesia regularly and 37 patients (88%) found their discharge analgesia to be effective. Two patients (5%) sought further advice regarding their pain management. One patient contacted their GP, the other patient did not report the source of the advice on the questionnaire. On POD 3, 28 patients (66.5%) were using regular analgesia and 31 patients (74%) found this to be effective. Three patients (7%) sought further advice, one contacted their GP, one contacted NHS 24 and one contacted both their GP and NHS 24.

Quality of Recovery Score

The QoR-9 questionnaire was also completed on POD1 and POD3 (Table 3). The mean score on day 1 is 15.5/18 and 15/18 on day 3.

Discussion

The RCOA recommends a number of targets regarding best practice in managing postoperative pain and analgesia in day case surgery⁸. These include: 100% of patients discharged with both verbal and written instructions regarding analgesia, fewer than 5% reporting 'severe' pain and the majority (85%) reporting 'none' or 'mild' pain in the first 48 hours. Our results show that in this patient group, none of these 3 targets were achieved, indicating significant room for improvement of postoperative pain management within our service.

We examined the QoR-9 score as a tool to objectively assess the quality of postoperative recovery in our population. The maximum potential score available is 18, with a score of 17 or greater indicating a good recovery and a score of 15 or less indicating a poor quality of recovery⁶. In our study the QoR-9 was low on both POD1 and POD3 after surgery, indicating a poor quality of recovery which persisted. This had been demonstrated in previous studies where QoR-9 scores returned to their pre-operative values between postoperative days five to seven after major surgery^{7,9}. It is interesting to note however, that while overall pain scores improved from day 1 to day 3, the QoR-9 score remained low. This confirms that amongst our patient group, other factors may play a role in a patient's perception of the quality of their recovery. Subsequent to the development of the QoR-9 score, and more detailed QoR-40 questionnaire has been designed¹⁰. This has been more extensively studied and validated. However, as participants were being asked to complete the questionnaire on two separate days postoperatively, the QoR-9 score was deliberately chosen so as not to over face the participants and encourage completion.

Postoperative quality of recovery is multifactorial, and the contributing factors are ranked varyingly dependant on the group of individuals asked⁶. Arnberger et al found that pain was universally ranked highly, and therefore of importance in recovery, by the three main groups (doctors, nurses and patients/relatives). However, an interesting difference between patient and doctor groups was the ranking of support from others (including doctors, nurses and family members), with a consistently higher importance placed by patients on this compared with doctors. This is reflected in our results, with lack of support from others contributing to the low QoR-9 scores. However, the phrasing of the question regarding support within the QoR-9 survey is

important. It simply asks whether the support from others is present, but not if it is required. The withdrawal of support could reflect the increasing independence of the patient by postoperative day 3, rather than a need which is not being met. Further clarification of this is required.

This pilot study was limited by small numbers and lack of statistical analysis. For example, we are unable to assess whether certain operations contributed to the low QoR-9 scores over others. Another confounding factor was the relatively low return rate of the questionnaires. This could simply be due to non-compliance with the participants, or that only those who felt able to completed the questionnaire and so were more likely to reflect a good recovery. Nonetheless, areas for improvement within our service can be identified. As a result, a patient information leaflet containing information and instructions on discharge analgesia has now been developed and put into clinical practice. Furthermore, our results suggest that quality of recovery may be slow despite the common perception that recovery from day case surgery may be rapid. This has potential for socioeconomical impact particularly in young patients where return to work is delayed or more support is required from carers after surgery. We did not explore whether patients or their carers were off work for longer than expected. Further studies are required to assess the correlation between types of anaesthetic (such as regional versus general) and the quality of recovery after day surgery.

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