Short Communication

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Post-Operative Care Following Appendicectomy: Are We Getting it Right First Time?

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Background

Commissioned by Royal College of Surgeons and NHS Improvement in 2017, the 'Getting It Right First Time – General Surgery' (GIRFT) report was created to improve the quality of care and to reduce unwarranted variations in service and practice1. Working to the principle that a patient should receive the same timely, quality, treatment and outcomes regardless of where they are treated within the NHS. The GIRFT programme was initially piloted on orthopaedic surgery where after being implemented for a 12-month period it had already delivered savings of around £30 million; with most of the savings coming from reducing the length of time the patient spends in the hospital1.

Following on from this the GIRFT programme identified that there is a significant variation in length of stay (LOS) after an appendicectomy. Nationally, the average LOS for an adult was 3.5 days. However, leading trusts are able 'to discharge over half of patients within two days of admission'1. It is estimated that if all providers were able to match this performance 30,000 bed-days and £8.5 million per year could be saved1.

Aim

The primary aim of this study was to analyse the length of hospital stays following appendicectomy at Stockport NHSFT. Additionally, we aimed to identify the factors preventing early discharge in patients with uncomplicated appendicitis i.e. those who should not require protracted post-operative care.

Type of study and place of study

The study is a retrospective clinical audit that took place at Stockport NHSFT (Stepping Hill Hospital), United Kingdom.

Method

A list of all patients that underwent an appendicectomy in the allocated time range was obtained from the hospital database and fully anonymised. The results were secured on a password protected EXCEL spreadsheet and not removed from the hospital premises to ensure data protection. The Stockport NHSFT hospital systems: Advantis EDS and EPRO were used obtain the patient's clinical notes which provided further details regarding why a patient had a prolonged LOS post-operatively. Discharge summaries and operative notes were used to calculate LOS and classify patients as either 'complicated' (evidence of perforation, empyema or abscess formation) or 'uncomplicated' appendicitis. The 48-hour target set by GIRFT was employed as the audit standard – 'All patients presenting with appendicitis who undergo uncomplicated appendicectomy should be discharged within two days of admission'1. In cases of uncomplicated appendicitis with an inpatient LOS >48 hours, the clinical notes were analysed to identify any causes of the delayed discharge.

Data collection 1

The first data collection period took place between June 2017 and December 2017. All patients that had an appendicectomy during the study period were included. There was a total of 98 participants included in data collection 1.

Interventions

After the first data collection several interventions were put into place to help the general surgical department at Stockport NHSFT achieve the 48-hour targets set out by GIRFT1. Firstly, a model operation

note was created for uncomplicated appendicitis, discouraging clinicians from including IV antibiotics in the post-operative instructions. The findings from data collection 1 were presented at a local audit meeting to highlight the prolonged LOS in some patients and this promoted further discussion about how we could improve the matter going forwards.

Teaching session were held for junior staff on acute appendicitis, including specific advice on post-operative care. Junior Doctors and Nurse Practitioners were also encouraged to ensure discharge summaries are prepared in advance of estimated discharge dates to help decrease delays due to discharge paperwork. Finally, evidence was presented to the consultant surgeons and surgical registrars that discourage the use of IV antibiotics post-operatively following an appendicectomy2.

Data collection 2

The second data collection period took place between October 2018 and April 2019, after all the interventions had taken place. All patients that had an appendicectomy during the study period were included. There were a total of 144 participants included in data collection 2.

Results

Data collection 1

Data collection 1 included 98 participants, with 61 having uncomplicated appendicitis and 37 having complicated appendicitis. Overall average LOS 3.31 was days. The average LOS in uncomplicated appendicitis was 2.52 days.

Out of the 61 cases 35 (57.3%) met the GIRFT standard of an inpatient stay <48 hours1. Of the remaining 26 patients that had an inpatient stay >48 hours; 8/26 (30.8%) had an unavoidable delayed discharge due to infective post-operative complications or the requirement for review from another specialty. 18/26 (69.2%) patients had and avoidable LOS >48 hours due to unnecessary post-operative IV antibiotic prescriptions, inadequately controlled pain and delayed production of a discharge paperwork and medications (Figure 1).

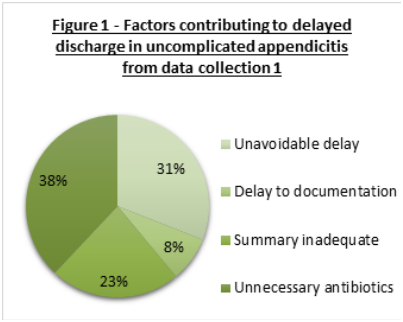

Figure 1: Factors contributing to delayed discharge in uncomplicated appendicitis from data collection 1.

Data collection 2

There was a total of 144 participants included in data collection 2, with 97 having uncomplicated appendicitis and 47 having complicated appendicitis. The overall average LOS 2.86 days. The average LOS in uncomplicated appendicitis was 2.23 days. Out of the 97 cases 62 (63.9%) met the GIRFT standard of an inpatient stay <48 hours1.

Out of the remaining 35 patients that had an inpatient stay >48 hours, 4/35 (11.4%) patients had an unavoidable LOS >48 hours due to post-operative complications or the requirement for review from another specialty. 23/35 (65.7%) patients had an avoidable LOS >48 hours. Reasons for this included inadequately controlled pain, unnecessary post-operative IV antibiotic prescriptions and pre-operative delays (Figure 2). At the time of writing we were unable to access the notes of 8/35 (22.9%) patients to identify a cause

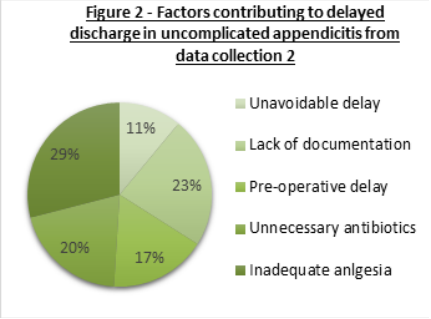

Figure 1: Factors contributing to delayed discharge in uncomplicated appendicitis from data collection 2.

Discussion

The results from data collection 1 highlighted that Stockport NHSFT was in line with the leading NHS trusts, in terms of being able to discharge over half of its patients (57.3%) in under 48 hours post-appendectomy. However, our results showed that in the group of patients with a LOS >48 hours, 69.2% of these could have been avoided. The reasons for the delayed discharged fell into various categories including a delay to the patients discharge documentation being completed and the unnecessary use of IV antibiotics post-operatively in cases of uncomplicated appendicitis. As a trust we felt that we could make further improvements and so the interventions (as described in the method section) were put into place.

Data collection 2 results showed an increased number of patients met the GIRFT target of discharging patients in under 48 hours (63.9%) in comparison to data collection 1 (57.3%) highlighting that the interventions, in particular the introduction of a model operation note template helped to achieve the outcomes. The average LOS for uncomplicated appendicitis in data collection 2 was 2.23 days in comparison to 2.52 days in data collection 1. The 2nd data collection shows a shift towards issues getting patients into theatre quickly rather than getting them home. This perhaps reflects a worsening NHS or is maybe because the 2nd dataset includes the winter period.

From the patients with a prolonged LOS >48 hours in data collection 2, 7/35 (20.0%) had a delay due to post-operative IV antibiotics in uncomplicated appendicitis. One patient had a CRP of over 200 so it was advised to continue IV antibiotics for 24 hours. The other 6 cases however were uncomplicated and IV antibiotic use was not required. Research by Mlees et al3 supports the theory that the use of IV antibiotics after appendicectomy does not lead to better outcomes. They found that treatment with postoperative antibiotics did not reduce the risk of developing infections. They also found that patients on postoperative IV antibiotics had higher rates of increased risk of Clostridium difficile infection (P =0.01) with higher rates of both readmission (P= 0.08) an a significantly longer hospital stay (2.6 vs 1.4 days, P = 0.001)3. A second study by Hughes et al4 investigated 266 patients and found that prolonging antibiotics beyond the operation in the simple appendicitis group did not alter the incidence of intra-abdominal infections4.

Limitations

In data collection 2 despite the model operation note, 7 patients still received unnecessary IV antibiotics post-operatively showing that future improvements still need to be made. Furthermore, the online notes for 8 patients were not available at the time of writing and so requesting the paper notes for these patients would ensure the completeness of the data.

Conclusion

GIRFT's 48-hour target is achievable with diligent use of supportive therapies and avoidance of unnecessary IV antibiotic prescriptions. We created a template operation note for use within our department and raised awareness of our findings. Our re-audit identified a significant improvement in average length of stay and a decrease in the number of patients who receive post-operative IV antibiotics. Further work needs to be done in the future to improve the pre-operative delays and ensure the GIRFT targets are continuously achieved.

References

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