Shortlisted

Management of Sepsis in patients undergoing emergency laparotomy: an audit of local NELA data

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NELA trainee poster prize

160

Introduction

The 2012 Surviving Sepsis guidelines describe a 3-hour bundle of checking serum lactate, taking blood cultures, administering antibiotics, and fluid resuscitation[1]. Emergency laparotomy patients often present with signs and symptoms of sepsis, which in these patients is a predictor of higher mortality[2 3].

It is reasonable to expect that effective sepsis management should be a key part of their pre-operative care. The National Emergency Laparotomy Audit (NELA) captures data on two elements of sepsis management, lactate and antibiotics. We undertook an audit to assess whether these elements were being undertaken in our institution.

Methods

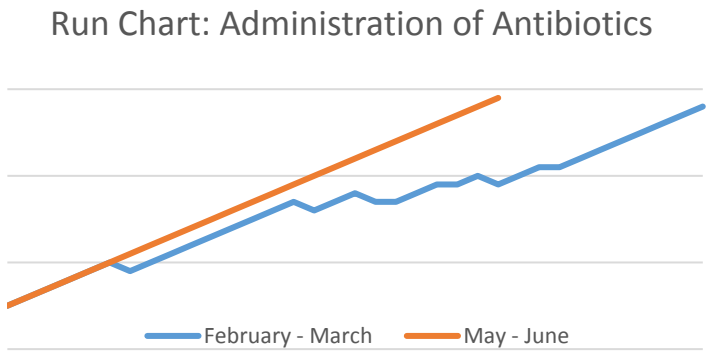
NELA data is captured during the time of surgery by the anaesthetist, then completed by surgeons and theatre coordinators. A retrospective audit was conducted based on completed entries. The first audit looked for evidence of antibiotic administration and serum lactate measurement prior to surgery in the months of February and March 2015. Where the status was unknown, it was assumed to be "No". The results were presented at an anaesthetic audit meeting in April, followed by the implementation of Run Charts[4] in the emergency theatre anaesthetic room during that month. Anaesthetic staff and theatre coordinators were encouraged to prompt the booking doctor about sepsis. In May and June, a re-audit was conducted. Differences were analysed for significance using a one-sided Fisher's Exact test.

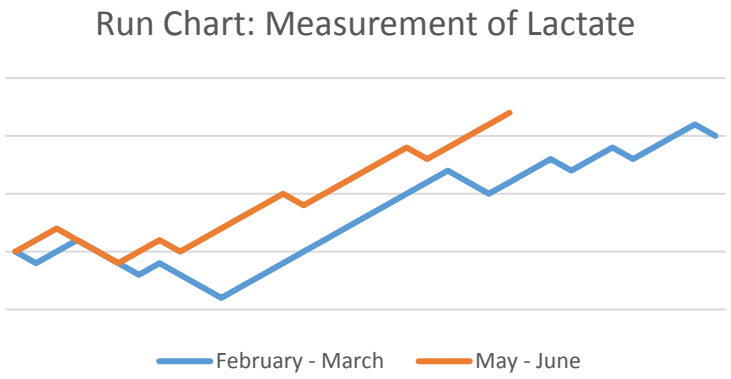
Results

According to the NELA dataset, 34 patients underwent an emergency laparotomy in February and March 2015. In May and June 24 patients underwent laparotomy. Results are shown in Table 1 and show a significant improvement in antibiotic administration but not in lactate measurement. A subgroup analysis of those patients with a pre-operative P-POSSUM mortality risk greater than 5% was performed looking at lactate measurement, which also showed non-significance.

Table 1: Numbers of those who did and did not receive the studied sepsis interventions in the audit and re-audit periods

Audit Period		Feb-Mar (n = 34)	May-Jun (n = 24)	p-value
Antibiotics given	Yes	27	24	0.0179
	No	7	0	
Lactate Checked (All)	Yes	22	18	0.2944
	No	12	6	
Lactate Checked (P-POSSUM >5%)	Yes	15	10	0.4403
	No	7	3	





Discussion

Our results demonstrated a lack of adherence to established Surviving Sepsis guidelines. In February and March, only 79% received timely antibiotics and 65% had serum lactate checked. Though we acknowledge that not all emergency laparotomies may be septic, examples of those that did not receive treatment included patients with bowel obstruction, intestinal perforation, and gut ischaemia.

Our re-audit demonstrated that simple measures such as visual cues and greater awareness was able to significantly improve management of sepsis in terms of antibiotic administration, though not lactate measurement. We hypothesise that admitting clinicians may recognise the need for laparotomy without appreciating that there is an underlying septic process requiring treatment. We recognise that the improvement at least in antibiotic administration may reflect an improved effort at accurate data collection rather than any change in clinical practice. Despite the best efforts of data collectors, some records may not yet have been completed and may have been missing from the analysed data. Following the re-audit, we introduced a further measure of altering our emergency operation request form to highlight whether the patient was septic and what treatment they had received. In future, we anticipate that our institution's involvement in the EPOCH study[5] will reinforce these key messages, and encourage best practices in the management of patients undergoing emergency laparotomy.

References

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