Acute pain and analgesia following lumbar decompression and fusion

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Introduction

There is currently no national standard for analgesia following lumbar decompression or fusion.

Routine practice at the Walton Centre in 2012 was a remifentanil infusion with intraoperative parecoxib, paracetamol and morphine followed by regular paracetamol and morphine PCA.

An audit was conducted to assess practice in light of new evidence suggesting:

1. Remifentanil may be associated with hyperalgesia and chronic pain (Van Gulik *et al*. 2012).
2. Ketamine reduces postoperative pain scores and opioid requirements (Abrishamkar *et al.* 2012 and Hadi *et al.* 2010).

Methods

A retrospective casenote audit of all lumbar decompressions and fusions between April 2012 and January 2014 was conducted in three separate cycles. A total of 60 patients were included (29 male). They had an age range 31-79 years with a mean 55.7.

Analgesics given preoperatively, intraoperatively, in recovery and postoperatively were recorded in addition to post-operative pain scores. The dose of opioid received on day 1 was also noted.

Interests: none declared.

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Results

All patients received paracetamol and a strong opioid intraoperatively, mean dose 9.1mg morphine-equivalents (range 2-20mg).

There was no evidence of increased opioid use on day 1 with a remifentanil infusion, regardless of other analgesia given (figure 1).

In patients given parecoxib (n=25) there was a reduction in opioid use on day 1, regardless of other analgesia given (figure 1).

Twenty eight patients also received clonidine (n=5), ketamine (n=12) or both (n=11). Doses ranged from 75-225 microgram for clonidine and 10-60mg for ketamine.

Figure 2 shows the mean morphine-equivalent dose given in recovery and on day 1. While the dose ranges are broad, 0-20mg for recovery and 0-111mg on day 1, the following trends are observed:

	Remi	No Remi	Parecoxib	No Parecoxib
Number	21	39	25	35
Morphine dose	23.6mg	37.7mg	18.6mg	20.8mg
Range	4-81mg	7-64mg	0-63mg	0-111mg

Figure 1: Mean morphine-equivalent doses received on day 1 where a remifentanil infusion was used intraoperatively versus where it was not and where parecoxib was given versus where it was not.

1. Ketamine and clonidine alone did not significantly alter opioid dose in recovery.
2. Ketamine alone reduced opioid requirements on day 1.
3. Clonidine alone appeared to increase opioid use on day 1.
4. Ketamine plus clonidine reduced opioid dose in recovery but this did not continue into day 1.

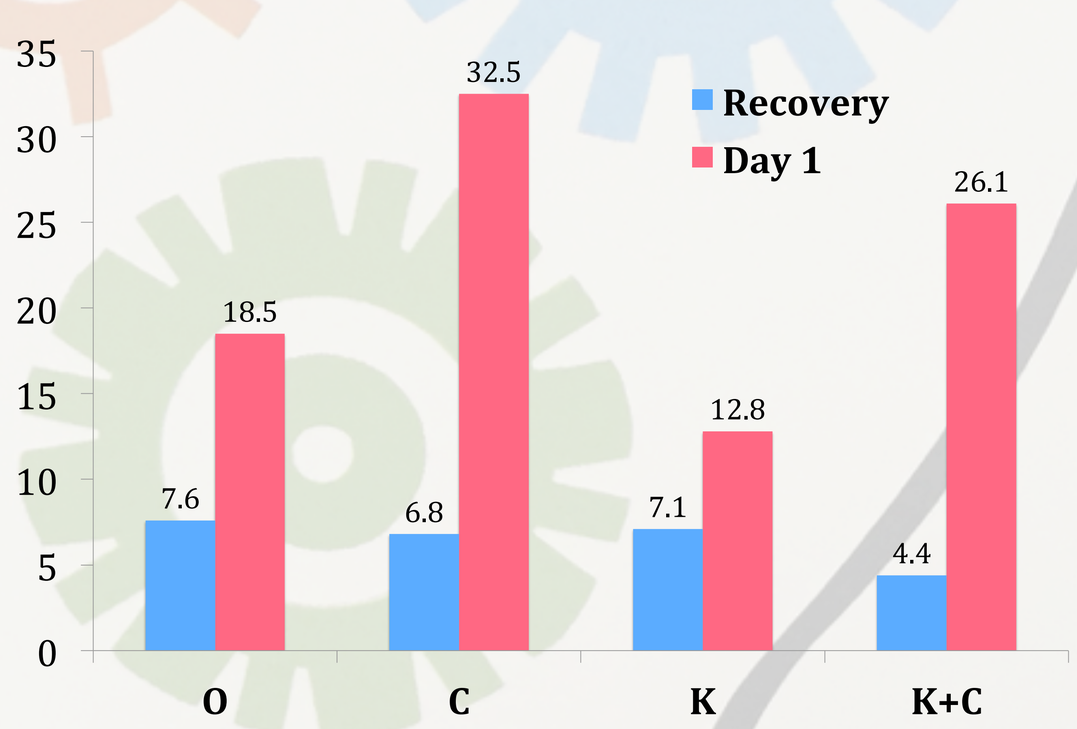

Figure 2: Mean morphine-equivalent dose given to each group of patients in recovery and on day 1. Intraoperatively, all patients received paracetamol and strong opioids with nothing else (O), clonidine (C), ketamine (K) or clonidine and ketamine (K+C).

Conclusions

This audit supports evidence that parecoxib has an opioid sparing effect in lumbar spinal surgery (Jirarattanaphochai *et al.* 2008).

The data also suggests intraoperative ketamine has an opioid sparing effect extending into day 1.

The support for clonidine is less clear but this may be because a very small number of patients received only clonidine (n=5).

The audit was limited by the number of different regimens, the small number of patients in each group, the inclusion of patients on multiple analgesics pre-operatively and the variability in drug doses given.

Further work is planned in the form of an appropriately powered prospective study with standardized drug doses and exclusion of confounding variables such as complex pre-operative analgesic regimens.

References

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