Critical appraisal – Randomised controlled trial questions

Slingsby et al. 2015

Introduction	
Are the aims clearly stated?	Yes. The aim of the study was not the same as the aim of our BET
Methods	
Is the study design suitable for the aims?	Says it is a randomized clinical research study.
Which population was studied?	45 cats presented to a clinic for neutering, presume University of Bristol clinic.
Were the treatments randomly allocated? If yes, how was the randomisation done?	Used a block randomization – stated that cats were divided into males and females first, then split into 3 so 8 females and 7 males per group. Unsure whether cats were recruited based on sex.
Were the groups comparable prior to intervention?	No significant differences in age or weight between the groups , no other information given (e.g. breed)
Was the person who administered the interventions blinded?	Yes the surgeon was blinded to treatment group. All were flank spays.
Is it clear what measurements were carried out in the study?	Mostly
Were the correct measurements chosen? Do they reflect (or are they strongly related to) the outcome of interest?	Yes Yes
Were previously established validated methods	IVAS pain scale used which has been published

used to make the measurements? (e.g. Glasgow pain score, International Units etc)	previously, non-validated scales were used for the rest of the assessments
What outcomes were measured?	Sedation (VAS scale and SDS scale), Ease of restraint for catheter placement, Pain (VAS scale called an IVAS scale; MNT measured next to the incision site), Recovery (time from anaesthesia to first head lift, first sternal recumbency, first standing), adverse events
Are the outcomes clinically relevant?	Yes
Were the outcomes assessed blind?	Yes, scorer was blinded
Are the statistical methods described?	Yes
Was the statistical significance level stated?	Yes $P<0.05$
Was the sample size justified?	Yes – calculation carried out
Was ethical approval obtained?	Yes
Are the methods described in enough detail that you could repeat them?	Yes; the scoring methods used could contain more details potentially.
Results	
Were the basic data adequately described?	Intraoperative variables described transparently, more difficult to identify basic data from sedation and pain scoring (in the Figures)
Do the numbers add up?	Lots of missing cats in Table 1 and 2 – attributed to

Are all subjects accounted for?	the time taken to instrument the cat
Was the statistical significance (p value) stated in the results? Is this consistent with the methods? (It should be stated in the sample size or power calculation)	Yes Yes
Were any side effects of the intervention reported if applicable?	No significant difference between groups – 5 cats in butorphanol, 2 in methadone and 0 in buprenorphine groups required rescue analgesia No other adverse events such as salivation, vomiting or other GI disturbances
What were the main findings/key results?	Pain scores via IVAS all generally low across the study; they were significantly higher in butorphanol group than buprenorphine group at 3, 4, 5 and 6+hrs post-surgery. MNT scores – no significant difference across treatments
Discussion and conclusion	
What do the main findings/key results mean?	Generally both treatments perform well. Effects of buprenorphine potentially may last slightly longer as no cats in this group needed rescue analgesia. The study was underpowered however which could affect the results.
Are the negative findings discussed? How are the negative findings interpreted?	Yes. Talked about study design issues as well as physiology as being an explanation as to the results.
Does the discussion reflect the results?	Yes
Interpretation	
What are the clinical implications of this study?	All opioids appear to work effectively. Buprenorphine may perform better than butorphanol but wasn't shown statistically here.

Are the subjects in the study similar to those in the BET/your own?	Yes
General	
Who funded this study?	Eurovet animal health (makers of Comfortan, methadone product used in the study)