Critical appraisal – Randomised controlled trial questions

Introduction	
Are the aims clearly stated?	Yes - The aim of this study was to evaluate postoperative pain in cats undergoing lateral or midline celiotomy to perform ovariohysterectomy, through the Botucatu multidimensional composite pain scale.
Methods	
Is the study design suitable for the aims?	Yes.
Which population was studied?	Fourteen healthy female cats up to three years old, with body weight (mean ± SD) of 2.75 ± 0.85 kg, without breed specification, were used in this experiment. The Stray Animal Center of Teresopolis, Rio de Janeiro, provided the animals for this study
Were the treatments randomly allocated? If yes, how was the randomisation done?	Yes but no explanation as to how the randomization was done
Were the groups comparable prior to intervention?	Group as a whole was broadly comparable but no information on factors that might vary between the two randomly allocated groups, eg. BCS, weight, reproductive status Measured TPR, Weight, BCS in pre anaesthetic evaluation but not reported.
Was the person who administered the interventions blinded?	No, the surgeon knew which approach was being used.
Is it clear what measurements were carried out in the study?	Yes, pain scale previously published. Time points of measurement were stated.
Were the correct measurements chosen? Do they reflect (or are they strongly related to) the outcome of interest?	Validated pain scale for post op pain in cats – have not looked at the validation ourselves. Also measured time taken for each procedure –

	comparable. They are related to the outcome of interest.
Were previously established validated methods used to make the measurements? (e.g. Glasgow pain score, International Units etc)	Yes.
What outcomes were measured?	Pain scale which consisted of measurements for posture, comfort, activity, attitude, misc behavior, surgical wound palpation, abdo/flank palpation, appetite and vocalization. Time for surgery was also measured
Are the outcomes clinically relevant?	Yes.
Were the outcomes assessed blind?	Query methods as to how this is blinded (a mock suture but not incision?) What happened to cats requiring rescue analgesia? It looks like they continued to be in the study and assessed alongside the cats not given the rescue analgesia.
Are the statistical methods described?	Yes.
Was the statistical significance level stated?	P =0.05
Was the sample size justified?	No.
Was ethical approval obtained?	Yes.
Are the methods described in enough detail that you could repeat them?	No – what happened to the cats given rescue analgesia?

Results	
Were the basic data adequately described?	No.
Do the numbers add up? Are all subjects accounted for?	There doesn't appear to be anomalies Yes
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?	Yes, needed rescue analgesia. It is not clear whether cats that received rescue analgesia remained in the study, or whether the remaining results are from the few cats that remain (only 1 at M4 for flank, as six had rescue analgesia)
What were the main findings/key results?	More analgesic rescues had to be performed in the lateral approach group (6 vs 3) Lateral approach cats had higher pain scores at 4 hours after surgery than the midline group The mean surgical time was longer in the lateral approach group (28 ± 5 versus 24.5 ± 4.5 minutes, but this result was not significant.
Discussion and conclusion	
What do the main findings/key results mean?	Difficult to interpret as results not clear – authors suggest that cats neutered by the flank approach experience more post –op pain
Are the negative findings discussed? How are the negative findings interpreted?	Midline approach cats had higher pain scores at the last time that scores were measured but this is thought to be due to the fact that more cats in the lateral group had had extra analgesia

Does the discussion reflect the results?	Yes
Interpretation	
What are the clinical implications of this study? Are the subjects in the study similar to those in the BET/your own?	I don't think you can use it to draw conclusions – small number of cats, method not fully explained. Very different anaesthesia and analgesia protocols are generally used on cats in the UK. Only analgesia in the method was a single dose of perioperative fentanyl. Also 30 min for a spay (either method) seems a long time. The introduction implies flank spay is an unusual procedure for the author, but does not state the surgeon's experience. If they were unfamiliar with either approach it would influence the outcome.
General	
Who funded this study?	