

## Critical appraisal – Randomised controlled trial questions

Assessment of the influence of surgical technique on postoperative pain and wound tenderness in cats following ovariohysterectomy. Grint, N. J. Murison, P. J. Coe, R. J. Pearson, A. E. W. Journal of Feline Medicine and Surgery. 2006. 8: 1, 15-21. 26 ref.

<b>Introduction</b>	
Are the aims clearly stated?	Yes, “to compare the relative severity of postoperative pain and wound tenderness following either flank or midline OHE in cats using behavioural measures.”
<b>Methods</b>	
Is the study design suitable for the aims?	Yes, the study population could be divided randomly into two groups, each group were treated the same except for the surgical approach.
Which population was studied?	Female cats admitted for elective OHE at Bristol School of Clinical Veterinary Science over a one year period. They were 6 months to 10 years old, no evidence of pregnancy, lactation or oestrus on clinical examination, ASA 1 and easily handled.
Were the treatments randomly allocated? If yes, how was the randomisation done?	Yes. Immediately before anaesthesia by blocked randomization.
Were the groups comparable prior to intervention?	Weight and age not significantly different (no p value)
Was the person who administered the interventions blinded?	No. Not possible as it was a surgical approach. The intervention was not one individual but in each case a final year veterinary student with limited experience of either approach.
Is it clear what measurements were carried out in the study?	Yes. Anaesthesia monitoring of HR, RR, rectal temperature and halothane vaporiser setting.

	<p>Extension of incision beyond initial 2.5cm incision.</p> <p>Duration of surgery.</p> <p>Sedation score (0-3), pain score (visual analogue scale) and wound tenderness (VAS) were measured before premed, min post premed, and 1, 3, 6, 9, 11-12 and 20-24h post op.</p>
<p>Were the correct measurements chosen?</p> <p>Do they reflect (or are they strongly related to) the outcome of interest?</p>	<p>Yes, they were likely to reveal confounding factors (sedation, wound length and surgical time) and measure the intended outcome (pain and tenderness).</p>
<p>Were previously established validated methods used to make the measurements?</p> <p>(e.g. Glasgow pain score, International Units etc)</p>	<p>The scoring for sedation was conducted by a single trained observer. It was not stated who assessed the VAS for pain and tenderness.</p> <p>The VAS for pain was carried out as described by Slingsby and Pearson(1998) and included observation without interaction and interaction with the cat.</p> <p>Palpation for tenderness was carried out in a standard way, but by different assessors.</p>
<p>What outcomes were measured?</p>	<p>Wound length, surgical time, sedation, pain score and wound tenderness.</p>
<p>Are the outcomes clinically relevant?</p>	<p>Yes, postoperative pain is undesirable for the cat's welfare. The wound length, surgical time and sedation level may have confounded the results.</p>
<p>Were the outcomes assessed blind?</p>	<p>An initial attempt was made to blind the study by bandaging the cats' abdomens, however this markedly affected the cats' behavior and so was abandoned.</p>
<p>Are the statistical methods described?</p>	<p>Yes. Area under the curve for cumulative scores for each cat was calculated.</p> <p>Data were plotted as histograms, those with normal distributions were compared with a two-</p>

	tailed <i>t</i> test and those that were not were compared using a Mann-Whitney test.
Was the statistical significance level stated?	Yes, $p= 0.05$
Was the sample size justified?	Yes, a sample size calculation was performed which showed that 23 cats in each group would give a 90% power of study to detect a 150 unit difference between AUC for wound tenderness.
Was ethical approval obtained?	Not stated.
Are the methods described in enough detail that you could repeat them?	Yes.
<b>Results</b>	
Were the basic data adequately described?	Most data was presented as means for each group, at each time point.
Do the numbers add up?  Are all subjects accounted for?	Yes.  66 cats were recruited, 6 were excluded due to unsuccessful attempt to blind the observer by bandaging the cats' abdomens, the data presented in the paper were mean or medians.
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, see key findings below.  Yes.
Were any side effects of the intervention reported if applicable?	Yes, two cats in each group required rescue analgesia.

<p>What were the main findings/key results?</p>	<p>The two different approaches did not have a significantly different pain score (<math>p = 0.516</math>)</p> <p>The flank incision group had a higher wound tenderness score (<math>p = 0.007</math>)</p> <p>The two groups did not have significantly different sedation scores or vaporizer settings.</p> <p>Midline incisions were longer (<math>p = 0.001</math>)</p> <p>Duration in surgical time was not significant (<math>p = 0.21</math>) was long at 43.8 and 41.1 minutes.</p>
<p><b>Discussion and conclusion</b></p>	
<p>What do the main findings/key results mean?</p>	<p>Post-operative pain was not different between the two groups.</p> <p>Wound tenderness is increased with a flank incision.</p>
<p>Are the negative findings discussed?</p> <p>How are the negative findings interpreted?</p>	<p>Behavioural signs of pain between the two groups were not significantly different.</p> <p>Perioperative NSAID may have masked any potential difference.</p>
<p>Does the discussion reflect the results?</p>	<p>Yes, discusses the choice of pain measurement and pros and cons of those in the study and alternatives.</p>
<p><b>Interpretation</b></p>	
<p>What are the clinical implications of this study?</p> <p>Are the subjects in the study similar to those in the BET/your own?</p>	<p>Cats with either approach to a spay don't appear to have significant differences in expression of pain, but flank incisions are more tender.</p> <p>They are slightly older, and thus more likely to be post-pubertal.</p>
<p><b>General</b></p>	
<p>Who funded this study?</p>	