

Critical appraisal – Randomised controlled trial questions

Bortolami et al. 2013

Introduction	
Are the aims clearly stated?	Yes
Methods	
Is the study design suitable for the aims?	Yes – testing treatments so RCT appropriate
Which population was studied?	Healthy cats admitted to University of Bristol for elective neutering
Were the treatments randomly allocated?	Yes
If yes, how was the randomisation done?	Allocated using a random number generator
Were the groups comparable prior to intervention?	No significant differences in age and weight between groups – inclusion criteria meant cats had to be over 5 months of age to be included in the population
Was the person who administered the interventions blinded?	Not stated
Is it clear what measurements were carried out in the study?	Yes
Were the correct measurements chosen?	Yes
Do they reflect (or are they strongly related to) the outcome of interest?	Yes

Were previously established validated methods used to make the measurements? (e.g. Glasgow pain score, International Units etc)	There were no published methods referred to in the methods – scoring systems used appeared in the appendices
What outcomes were measured?	Level of sedation, clinical parameters (temperature, pulse, respiratory rate), ease of restraint for intravenous catheter placement, degree of pain at surgical site using an interactive visual analogue scale, mechanical nociceptive threshold, behavior, anaesthetic recovery, adverse events Only used a flank approach for surgery
Are the outcomes clinically relevant?	Yes
Were the outcomes assessed blind?	Yes – although they say in the results that after 7 hours, the assessor was aware of the methadone status of the cats (or was this just the rescue analgesia?)
Are the statistical methods described?	Yes
Was the statistical significance level stated?	Yes $p < 0.05$
Was the sample size justified?	Yes, they performed a sample size calculation
Was ethical approval obtained?	Yes
Are the methods described in enough detail that you could repeat them?	Yes
Results	

<p>Were the basic data adequately described?</p>	<p>Not sure how many vets were involved?</p> <p>Otherwise pretty good, lots of N numbers and means or medians</p>
<p>Do the numbers add up?</p> <p>Are all subjects accounted for?</p>	<p>There appears to be some missing data for the intraoperative variables (Table 2), and for intraoperative variables (Table 3)</p> <p>Authors explain reasons for missing data in relation to intraoperative variables</p>
<p>Was the statistical significance (p value) stated in the results?</p> <p>Is this consistent with the methods? (It should be stated in the sample size or power calculation)</p>	<p>Yes</p> <p>Yes</p>
<p>Were any side effects of the intervention reported if applicable?</p>	<p>No adverse effects reported, but some animals did require rescue analgesia</p>
<p>What were the main findings/key results?</p>	<p>No statistical differences between groups in relation to timing or recovery from anaesthesia except female cat butorphanol group had significantly shorter surgical procedures than female cat buprenorphine group</p> <p>No significant differences between groups in relation to ease of restraint for IV catheter placement, clinical parameters (although blood pressure was not measured in all cats), sedation scores 2-6 hours after premedication, animals needing rescue analgesia, mechanical nociceptive threshold, degree of pain at surgical site using visual analogue scale and adverse events</p>
<p>Discussion and conclusion</p>	
<p>What do the main findings/key results mean?</p>	<p>That there doesn't appear to be any clear benefit of one treatment over the other</p>

<p>Are the negative findings discussed?</p> <p>How are the negative findings interpreted?</p>	
<p>Does the discussion reflect the results?</p>	<p>Introduced here that the study was designed for regulatory purposes in order to obtain a Marketing Authorisation for administration of methadone to cats – doesn't appear earlier?</p> <p>Says here and not earlier that the surgeries were carried out by experienced surgeons</p> <p>Covers the results to some extent, but talks about other things unrelated to the aims of the study e.g. mydriasis</p>
<p>Interpretation</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>That either butorphanol or buprenorphine are suitable to use as analgesics postoperatively for female cats undergoing neutering</p> <p>N/A – they are given similar premed regime, very relevant to practice</p>
<p>General</p>	
<p>Who funded this study?</p>	<p>Funded by Eurovet Animal Health BV (acquired by Dechra - manufacturers of methadone)</p>