Critical appraisal – Randomised controlled trial questions

Denis-Robichaud & Dubuc 2015

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?	Holstein cows from 28 commercial dairy herds within a 250 mile radius of St Hyacinthe vet faculty
Were the treatments randomly allocated? If yes, how was the randomisation done?	Cows were randomly assigned – says using a predetermined random list within each herd, does not say how this was done
Were the groups comparable prior to intervention?	Not easy to determine as measured parameters once the treatments had been given (e.g. Table 1, at 35 DIM). No significant differences between no. of animals, parity, DIM at examination
Was the person who administered the interventions blinded?	Not stated, but would be impossible due to nature of administration
Is it clear what measurements were carried out in the study?	Yes
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	Diagnosis methods referenced

used to make the measurements? (e.g. Glasgow pain score, International Units etc)	
What outcomes were measured?	Pregnancy at first service
Are the outcomes clinically relevant?	Yes
Were the outcomes assessed blind?	Not stated
Are the statistical methods described?	Yes
Was the statistical significance level stated?	Yes, $P<0.05$
Was the sample size justified?	Yes
Was ethical approval obtained?	Not stated
Are the methods described in enough detail that you could repeat them?	Not much detail about the administration of the treatment, or how the data was extracted from the records (or organized)
Results	
Were the basic data adequately described?	Some basic data in table 1 and in the text, although more would be beneficial
Do the numbers add up? Are all subjects accounted for?	Some discrepancies between numbers in Table 1 and text (no. of animals with PVD), and also first paragraph of the results in terms of excluded animals
Was the statistical significance (p value) stated in the results?	Yes

Is this consistent with the methods? (It should be stated in the sample size or power calculation)	Yes seems to be
Were any side effects of the intervention reported if applicable?	No, but almost 10% were culled (235/2506 or 2135 cows, question over the denominator) prior to pregnancy diagnosis being performed.
What were the main findings/key results?	Treatment with cephapirin significantly increased first service pregnancy risk in cows affected by PVD but not untreated cows. No significant differences between PVD and control groups in terms of prolonged anovulation. A greater improvement in first service pregnancy 'risk' was seen in cyclic cows (treated cows 34.1%; no treatment 22.7%) than anovular cows (treated cows 26.4%; no treatment 21%)
Discussion and conclusion	
What do the main findings/key results mean?	Treatment of cattle with clinical endometritis with cephapirin results in a higher first service pregnancy rate than no treatment.
Are the negative findings discussed? How are the negative findings interpreted?	Yes Do talk about aspects of sample size affecting results
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?	Pregnancy rate at first service was increased in animals diagnosed with purulent vaginal discharge when treated with intrauterine cephapirin when compared with no treatment. Yes

General	
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