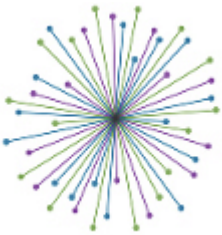

BestBETs for Vets

Supporting veterinary clinicians in making evidence-based decisions

The University of Nottingham
UNITED KINGDOM · CHINA · MALAYSIA

Oxytetracycline versus macrolide administration in sheep with infectious keratoconjunctivitis

Clinical Scenario

You are called to visit a flock of ewes that are 6 weeks away from lambing and they are suffering an outbreak of 'pink eye'. There are significant numbers of sheep affected with varying clinical signs of ovine infectious keratoconjunctivitis (OIKC). Following diagnosis and a plan for treatment using injectable anitbotics, the farmer suggests that a 'stronger' drug had been used on a neighbours farm that might speed up the recovery process. Discussion on a vet chat forum suggests success with a macrolide antibiotic compared to the cheaper, more commonly used therapy of injectable oxytetracycline.

You wonder if there is any benefit in recommending the use of an injectable macrolide antibiotic rather than an injectable oxytetracycline antibiotic for a quicker resolution of clinical signs for OIKC.

3-Part Question (PICO)

In [sheep with infectious keratoconjunctivitis] does the [administration of an injectable oxytetracycline compared with an injectable macrolide] result in a [more rapid cessation of clinical signs]?

Search Strategy

MEDLINE(R) In-Process & Other Non-Indexed Citations and MEDLINE(R) 1946 to Present using the OVID interface

(sheep.mp. OR ovine.mp. OR ovines.mp. OR ovis.mp. OR exp sheep/)

AND

(Mycoplasma conjunctivae.mp. OR exp Mycoplasma conjunctivae/ OR Chlamydophila.mp. OR exp Chlamydophila/ OR ovine infectious keratoconjunctivitis.mp. OR OIKC.mp. OR infectious keratoconjunctivitis.mp. OR exp Keratoconjunctivitis, Infectious/ OR keratoconjunctivitis.mp. OR exp Keratoconjunctivitis/ OR pink eye.mp. OR pinkeye.mp. OR contagious ophthalmia.mp. OR snow blindness.mp. OR newforest disease.mp. OR

new forest disease.mp. OR newforest eye.mp. OR new forest eye.mp. OR cloudy eye disease.mp. OR bright blindness.mp. OR listeria iritis.mp. OR conjunctivitis.mp. OR exp Conjunctivitis, Bacterial/ OR Chlamydia psittaci.mp. OR Chlamydophila psittaci.mp. OR exp Chlamydophila psittaci/ OR Chlamydophila pecorum.mp.)

AND

(macrolide.mp. OR macrolides.mp. OR tilmicosin.mp. OR Mycotil.mp. OR gamithromycin.mp. OR Zactran.mp. OR tulathromycin.mp. OR Draxxin.mp. OR exp Macrolides/ OR oxytetracycline.mp. OR oxytetracyclines.mp. OR tetracycline.mp. OR tetracyclines.mp. OR oxytet.mp. OR OTC.mp. OR Alamycin.mp. OR Engemycin.mp. OR exp Oxytetracycline/ OR exp Tetracyclines/ or Aureomycin.mp. OR chlortetracycline.mp. OR chlortetracyclines.mp. OR exp Chlortetracycline/ OR antibiotic.mp. OR antibiotics.mp. OR antimicrobial.mp. OR antimicrobials.mp. OR antibacterial.mp. OR antibacterials.mp. OR anti-bacterial.mp. OR anti-bacterials.mp. OR exp Anti-Bacterial Agents/)

CAB Abstracts 1910 to Present using the OVID interface

(sheep.mp. OR ovine.mp. OR ovines.mp. OR ovis.mp. OR exp sheep/)

AND

(Mycoplasma conjunctivae.mp. OR exp Mycoplasma conjunctivae/ OR Chlamydophila.mp. OR exp Chlamydophila/ OR ovine infectious keratoconjunctivitis.mp. OR OIKC.mp. OR infectious keratoconjunctivitis.mp. OR keratoconjunctivitis.mp. OR exp keratoconjunctivitis/ OR pink eye.mp. OR pinkeye.mp. OR contagious ophthalmia.mp. OR snow blindness.mp. OR newforest disease.mp. OR new forest disease.mp. OR newforest eye.mp. OR new forest eye.mp. OR cloudy eye disease.mp. OR bright blindness.mp. OR listeria iritis.mp. OR conjunctivitis.mp. OR exp conjunctivitis/ OR Chlamydia psittaci.mp. OR Chlamydophila psittaci.mp. OR exp Chlamydophila psittaci/ OR Chlamydophila pecorum.mp. OR exp Chlamydophila pecorum/)

AND

(macrolide.mp. OR macrolides.mp. OR tilmicosin.mp. OR gamithromycin.mp. OR tulathromycin.mp. OR Mycotil.mp. OR Zactran.mp. OR Draxxin.mp. OR exp macrolide antibiotics/ OR exp tilmicosin/ OR oxytetracycline.mp. OR oxytetracyclines.mp. OR tetracycline.mp. OR tetracyclines.mp. OR oxytet.mp. OR OTC.mp. OR chlortetracycline.mp. OR chlortetracyclines.mp. OR Alamycin.mp. OR Engemycin.mp. OR Aureomycin.mp OR exp oxytetracycline/ OR exp tetracycline/ OR exp chlortetracycline/ OR antibiotic.mp. OR antibiotics.mp. OR antimicrobial.mp. OR antimicrobials.mp. OR antibacterial.mp. OR antibacterials.mp. OR anti-bacterial.mp. OR anti-bacterials.mp. OR exp antibiotics/ OR exp antibacterial agents/)

Search Outcome

MEDLINE

- **53** papers found in MEDLINE search
- **50** papers excluded as they don't meet the PICO question
- **0** papers excluded as they are in a non-English language
- **2** papers excluded as they are review articles/in vitro research/conference proceedings
- **1 total relevant papers from MEDLINE**

CAB Abstracts

- **177** papers found in CAB search
- **172** papers excluded as they don't meet the PICO question
- **0** papers excluded as they are in a non-English language
- **4** papers excluded as they are review articles/in vitro research/conference proceedings

- **1 total relevant papers from CAB**

Total relevant papers

1 relevant papers from both MEDLINE and CAB Abstracts

Summary of Evidence

König, 1983, The Netherlands (assumed)

Title: 'Pink eye' or 'zere oogjes' or Keratoconjunctivitis Infectiosa Ovis (KIO)

Patient group: Eight farms with a recent infection of KIO (morbidity greater than 20%) were included in the study. A macrolide and an oxytetracycline were compared in two separate studies (experiment 3 and experiment 4) on three of these farms (called N at E, W at W, and S at W), involving 62 animals in total.

All sheep included were of the Texel breed and were 1 year of age or older.

Study Type: The study has some features of a randomised controlled trial but has some omissions. Therefore, the standard appraisal questions are used.

Outcomes:

- Assessment of clinical signs following different treatments using a coded scoring system.
- A clinical score was assigned at the start of treatment which included a combined score for both eyes.
- A second reassessment was carried out and a score assigned, which occurred at variable timepoints (between 2.5 days to 5 days after initial treatment).
- A third reassessment occurred on 2 of the 3 farms (experiment 4) and a score assigned at variable timepoints (between 4 and 9 days after initial treatment)

Key Results:

- In experiment 3, there was no significant difference found between clinical ocular scores when comparing Spiramycin and Engemycin groups (P=0.93 for N at E farm).
- In experiment 4 across 2 farms, there was no significant difference found on either farm between clinical ocular scores when comparing Spiramycin and Terramycin groups (P=0.56 for W at W farm; P=0.23 for S at W farm).

Study Weaknesses:

- No information was provided as to whether sample size calculations were carried out prior to the commencement of the studies.
- There is limited information about factors such as the age ranges in each group, weights and type of farming system.
- How the comparisons were made between the different groups is not clear (e.g. how the codes for each eye were aggregated and how scores were ‘stratified’ prior to comparison was not made clear).
- The interpretation of the coding for disease severity was unclear.
- There were multiple comparative studies within this paper, and it is unknown how similar the general conditions on each farm were which could have an affect on the results.

- Due to omission of information, repeatability of the study would be difficult as there was no information provided regarding who made the assessments of the clinical scores.
- The statistical methods were not described.
- There was no mention of whether ethical approval was obtained prior to the commencement of the study
- The dosages of the antibiotics used in experiment three were lower than those used in experiment four.

Attachment:

Evidence appraisal (/soe_attachments/439/3579-Critical appraisal OIKC_23.03.21.pdf)

Comments

This BET looks at the only published study comparing the use of an oxytetracycline and a macrolide in the treatment of 'pink eye'. The paper references another experiment in which the levels of secretion of these drugs into the lacrimal fluid has been assessed, which could be another outcome of interest for clinicians treating these patients.

Mycoplasma conjunctivae is usually the primary pathogen with secondary involvement from other bacterial pathogens such as *Chlamydophila*. These organisms are usually susceptible to both the oxytetracycline and macrolide class of antibiotics.

Bottom line

There appears to be no difference in the speed of cessation of clinical signs between the use of an injectable oxytetracycline versus an injectiable macrolide for the treatment of ovine infectious keratoconjunctivitis. However due to the study weaknesses, this should be interpreted accordingly.

References

König, CDW, (1983). 'Pink eye' or 'zere oogjes' or Keratoconjunctivitis Infectiosa Ovis (KIO). *Veterinary Quarterly* **5:**122-127. https://doi.org/10.1080/01652176.1983.9693885

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Search last performed:
2021-03-29 16:20:12
Original publication date:
2021-03-29 16:20:12
Last updated:
2021-03-29 16:20:12