

[volume 41 | supplement 1 | june 2018]

JOURNAL OF
**Veterinary
Pharmacology
and Therapeutics**

Including veterinary toxicology

14th International Congress of the
European Association for Veterinary
Pharmacology and Toxicology held in
Wroclaw, Poland, June 24–27, 2018

Guest edited by Błażej Poźniak,
Marcin Światała and
Johanna Fink-Gremmels

ISSN 0140-7783 (paper)
ISSN 1365-2885 (online)

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animals. Possible interactions of OTC with feed components present in the GIT would contribute to decrease BA, making this antibiotic not recommended for the oral treatment of systemic infections in pigs.

P1.9 | Efficiency of oral doxycycline medication in weaner pig holdings with recurring respiratory disease outbreaks

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Introduction: Antibiotic resistance has become a major public concern and reducing antibiotic usage is important. However, it is crucial to remember that with the responsible and timely use, antibiotics are critical in treating and preventing the spread of diseases. Doxycycline is one of the preferred antibiotics for treating respiratory diseases in pigs and is often given orally via feed or water to treat a larger group of pigs.

Objective: In this study a respiratory health score and plasma levels of doxycycline reached via different oral medication systems in practical settings were compared and used to measure the efficiency of treatment.

Materials and Methods: 11 pig producing farms were visited during acute respiratory outbreaks. Before treatment 10 clinically sick weaners were selected. From these animals the respiratory health was scored and plasma samples were taken before and on the last day of antibiotic treatment. The pigs were orally treated with doxycycline (20 mg kg⁻¹ body weight per day for 5 days) via water or feed, depending on the on-site situation. Doxycycline concentration in plasma of the animals was measured by high performance liquid chromatography (HPLC-UV). Concentrations of > 1.0 µg ml⁻¹ doxycycline (CLSI breakpoint) were considered effective.

Results: In 9/11 farms the antibiotic was given via feed, in 1 farm it was given via water and in 1 farm via feed and water. Preliminary results show that 2/10 farms reached a median concentration of ≥ 1.0 µg ml⁻¹ during treatment. In plasma samples, ≥ 1.0 µg ml⁻¹ was measured in 27%, > 0 < 1.0 µg ml⁻¹ in 40%, and no doxycycline in 33%. The median concentration of plasma samples measured up to now was 0.29 µg ml⁻¹ and the results range from 0 to 4.33 µg ml⁻¹. Before and on the last day of treatment the pigs respiratory health score did not exceed low-grade. About 80% of the clinically scored animals improved during treatment.

Conclusion: The results show a large variation of doxycycline levels reached in plasma by different oral medication systems.

Concentrations > 1.0 µg ml⁻¹ were measured only on 2/10 farms, though fluctuations of measurements dependent on time lags between antibiotic uptake and sampling should be taken into account. As the overall health of the pigs improved despite these low plasma concentrations the influence of treatment on recovery.

P1.10 | Oxytetracycline excretion in sows' colostrum and milk

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Introduction/Objective: In intensive pig farming antibiotics are often administered to sows during peripartum for the treatment of mastitis metritis agalactia (MMA) on one hand and with the irrational goal of decreasing the bacterial load to which new born piglets would be exposed. The passage of antibiotics to colostrum and milk that could affect intestinal health of the litter is not taken into account when these treatments are implemented. The aim of this study was to assess colostrum and milk elimination in sows after the treatment with oxytetracycline solution (OTC-S) and long acting oxytetracycline (OTC-LA) during peripartum.

Materials and Methods: Farrow was induced with 1 ml PGF_{2α} IM to twenty healthy, second farrowing sows at day 114 of gestation. Ten sows received a single dose of 20 mg kg⁻¹ body weight OTC-LA at the time of induction. The other sows received 3 doses of 6 mg kg⁻¹ body weight OTC-S being the first dose administered at the time of induction and then every 24 h. Colostrum/milk samples were collected at the beginning of farrowing (0 h), 2, 4, 6, 8, 10, 12, 24 and 48 h post-partum and analyzed by HPLC-UV. AUC₀₋₄₈ was calculated using PK solutions[®] 2.0 software. Non-compartmental analysis was performed.

Results: Oxytetracycline (OTC) concentrations were 0.68 ± 0.08 and 0.22 ± 0.19 µg ml⁻¹ for 0 and 48 h respectively for OTC-LA, and 0.34 ± 0.04 and 0.10 ± 0.06 µg ml⁻¹ for OTC-S at the same time points. Mean eliminated concentration in colostrum (first 24 h) was 0.78 ± 0.18 and 0.48 ± 0.07 µg ml⁻¹ for OTC-LA and OTC-S respectively. AUC₀₋₄₈ was 28.36 ± 16.71 µg×h ml⁻¹ for OTC-LA and 18.91 ± 5.92 µg×h ml⁻¹ for OTC-S.

Conclusions: OTC concentrations in colostrum and milk did not reach MIC₉₀ for *Escherichia coli* (CIM₉₀: > 64 µg ml⁻¹) or *Streptococcus suis* (CIM₉₀: 64 µg ml⁻¹) for none of the treatments. These findings suggest this antibiotic would not be useful for the treatment of MMA due to the low concentrations achieved at the mammary glands. In addition, OTC is less active in presence of calcium as it is the case in of colostrum and milk. Besides, the possible impact of these concentrations of OTC on new born lactating piglets' intestine should be considered.