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S-KETAMINE AND INTRANASAL APPLICATION: ALTERNATIVES FOR THE CASTRATION OF MALE SUCKLING PIGLETS?

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Introduction

Intramuscular injection of anaesthetics ketamine and azaperone has been proposed as an alternative for surgical castration of male suckling piglets. However, in conflict with a good surgical tolerance is hypothermia, tachycardia, a prolong castration period, and a long recover phase with disadvantages for piglets and sow. Aims of the present study were to test, whether the application of the ketamine S-enantiomer and intranasal application instead of intramuscular could reduce agitation, defensive movements, stress and the length of recovery in comparison to the usually applied RS-racemate.

Material & Methods

The experiment was conducted on a commercial farm in Germany. Seventy-eight healthy, five dayold male piglets were matched by litter and weight to six treatment groups in a randomized and blinded experimental study. The setup compared the RS-racemate with the S-enantiomer of ketamine and the intramuscular with the intranasal route. Effects were estimated based on movements and vocalisation under castration, cortisol levels, clinical parameters and the duration of the recovery phase.

Results

The exchange of the RS-racemate of ketamine by the pure S-enantiomer significantly reduced movement scores and tachycardia during castration of male piglets. Cortisol levels 120 minutes after castration, breathing rates and recovery time were significantly increased. Hypothermia reached the same level with S-ketamine as with the RS-racemate. Intra nasal application of S-ketamine further decreased accuracy and efficiency of ketamine anaesthesia in piglets. Significant parts of the drug were spilled during application in a non-systematic way. Effects on cortisol levels 120 minutes after castration and tachycardia seemed to be just an effect of total lower ketamine uptake by the i.n. route. I.n. application had no positive effect on the length of the recovery period.

Discussion & Conclusion

We conclude that neither the application of S-ketamine nor the intranasal route are alternatives for future anaesthesia in suckling piglet castration.

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