Efficacy of different combined or simultaneously administered vaccines against *Mycoplasma hyopneumoniae* infection

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Introduction

Enzootic pneumonia due to primarily *Mycoplasma hyopneumoniae* (M.hyo) and PCVD due to PCV2 virus remain a severe health and economic problem in pig farms. Vaccination against those two pathogens helps to reduce their clinical manifestation and corresponding losses. Several commercial mono- or bi-valent vaccines are available. The aim of this study was to evaluate the efficacy of different PCV2 and M.hyo vaccines in the experimental M.hyo challenge models.

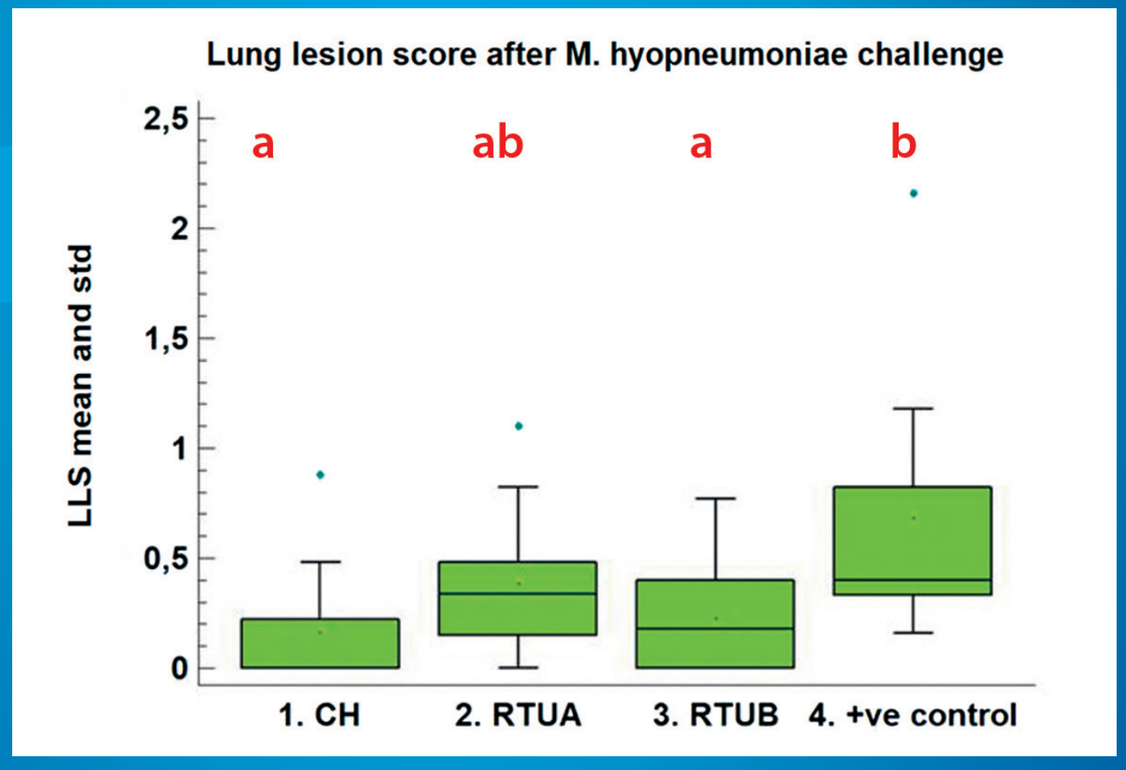
Material and methods

In two different experiments three-weeks old piglets were vaccinated either with Circovac® plus Hyogen®(CH) - both Ceva simultaneously or various PCV2+M.hyo RTU or RTM vaccines. In the trial 1) vaccines RTUA and RTUB were used and pigs were challenged at 7 weeks of age (WOA). In the trial 2) vaccines RTUA and RTMC were used and the challenge was performed at 12WOA. Serum samples were collected prior to vaccination, challenge, and slaughter, and measured by BioChek and IDVet Mycoplasma hyopneumoniae ELISA kits. Pigs were always euthanized 4 weeks later and lung lesions scored according to the European Pharmacopoeia 9.0. Doubtful macroscopic lesions were further investigated by histopathology.

Results

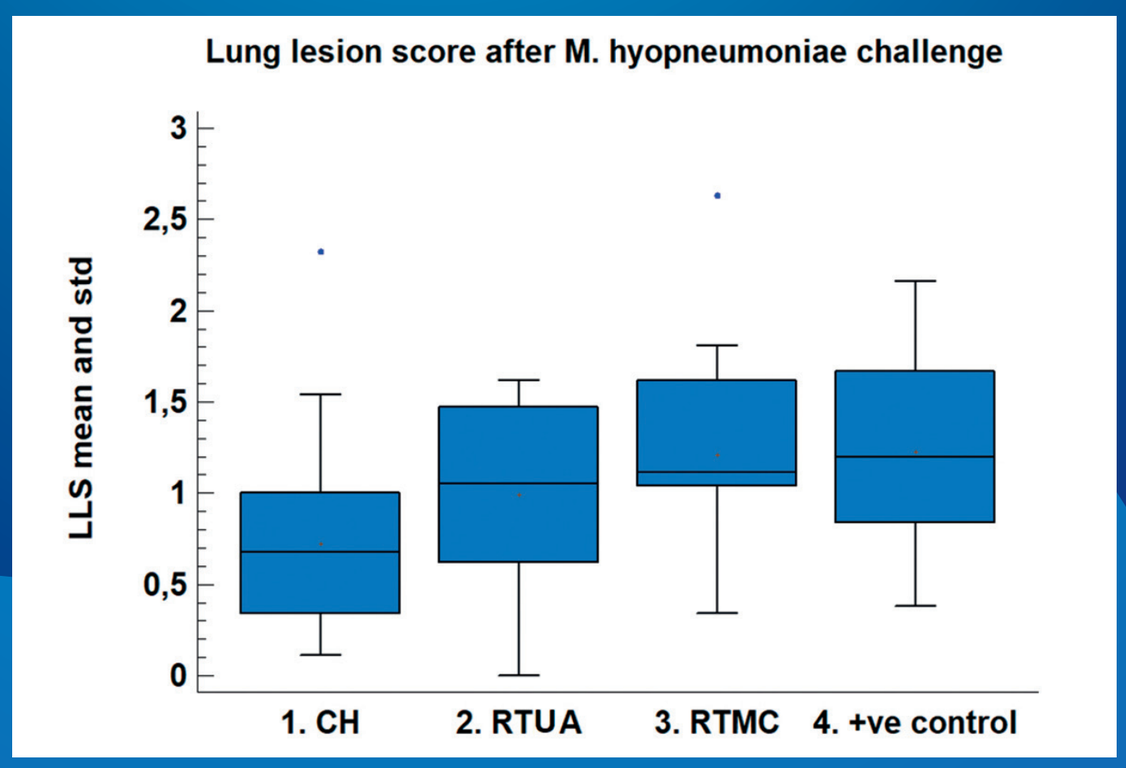
In both trials CH induced always higher M.hyo seroconversion prior to challenge than any other vaccines. Group mean lung lesion scores (LLS) in groups CH, RTU A, RTU B and positive control in trial 1) were as follows: 0.16; 0.38; 0.23; and 0.68. Only CH and RTUB differed significantly from the control.

Graph 1. *Lung lesion scores in trial 1)*



In the trial 2) the results for CH, RTUA and RTM and positive control were as follows 0.72; 0.98; 1,2; and 1.22, respectively.

Graph 2. *Lung lesion scores in trial 2)*



Histopathology confirmed the macroscopic scores.

Conclusion

This study demonstrated that Hyogen® administered simultaneously with Circovac® outperformed the already combined PCV2+M.hyo RTU and also the RTM vaccines concerning the protection against the development of lung lesions due to M.hyo. Some of the combined PCV2 and M.hyo vaccine may provide sub-optimal protection against M.hyo infection and thus the convenience of such use doesn't correspond with the expected efficacy.