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TITLE

EFFECT OF MYCOPLASMA HYOPNEUMONIAE VACCINATION TIME AFTER BIRTH AND VACCINE DELIVERY METHOD (INTRAMUSCULAR VS. INTRADERMAL) ON THE EXTENT OF ANTIBODY AND CELLULAR IMMUNE RESPONSES IN CONVENTIONALLY REARED PIGS UPON NATURAL CHALLENGE

Luca Ferrari[1], Elena De Angelis[1], Valeria Cavalli[1], Gianluca Bazzoli[1], Elena Canelli[1], Alessia Catella[1], Giulia Ogno[1], Paolo Borghetti[1], Paolo Martelli[1]

[1] *Department of Veterinary Science, University of Parma, Strada del Taglio, 10 – 43126, Parma, Italy*

CONTENT

The rationale and improvement of vaccination schedules and vaccine administration has been studied to find the most efficient conditions to let piglet immunity properly develop despite the interference of maternal immunity. These conditions primarily concern vaccination time, distance between vaccination and weaning, and administration methods. Besides the IM route, the ID route proved to be an efficient way, able to stimulate dermal dendritic cells to present antigens to T lymphocytes and trigger the downstream reactions. The aim of this work was to determine the best time for Mycoplasma hyopneumoniae (M.hyo.) vaccination after birth and comparing the intramuscular (IM) vs. the intradermal (ID) route in eliciting the antibody and cellular responses. In total, 9 groups of 100 piglets each from non-vaccinated sows were considered: one IM and one ID vaccinated group were enrolled at 1, 2, 3 and 4 weeks of age and one group was kept non-vaccinated. Blood samples were collected at vaccination and one week apart until 24 weeks of age. ELISA antibodies and M.hyo-specific ELISPOT IFN-gamma-secreting cells were investigated.

All vaccinated groups did not show significant responses after vaccination and only groups vaccinated from 2 weeks of age onwards had an antibody response after infection. Almost all groups showed a significant IFN-gamma-SC response at 4 weeks post-vaccination and a variable response after infection. The groups vaccinated at 3 and 4 weeks of age had the most intense responses, with the ID delivery route always better than the IM. Three- and four-week-old vaccinated piglets had more efficaciously elicited antibody and cellular responses, reasonably because immune activation occurred further from the maternally-derived antibody (MDA) vanishing. The ID vaccination route showed a better response, and this further confirms that ID vaccination is able to efficiently prime local antigen recognition and trigger an efficient immune response both at tissue level and systemically.