

Protective efficacy of VAXXITEK® HVT+IBD in commercial layers and broilers against challenge with very virulent infectious bursal disease virus

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Infectious bursal disease virus (IBDV) infections are still a risk for poultry production worldwide. Many IBD vaccines provide excellent protection under laboratory conditions in specific-pathogen-free layer-type chickens, but field conditions and variable maternal IBD antibody levels as well as different genetic backgrounds often interfere with the induction of sufficient protective immunity in the chicken flocks. The vector vaccine VAXXITEK HVT+IBD provides the advantage of dual vaccination of chickens against infectious bursal disease (IBD) and Marek's disease even in the presence of IBD-maternal antibodies. The objectives of the presented studies were to understand more about the efficacy of VAXXITEK HVT+IBD against very virulent IBDV challenge in commercial broiler-type and layer-type chickens. In the first experimental set-up, we compared the induction of protective immunity after in ovo administration to post hatch vaccination with VAXXITEK HVT+IBD in commercial IBD-antibody free broilers. The onset of protection was determined using a series of challenges with very virulent (vv) IBDV at 5, 7, and 14 days post vaccination (PV). Protection measured by improvement of bursa lesion scoring was shown for post hatch vaccinated birds at 5 days PV and for both vaccinated groups after 14 days PV. In the second experimental set-up we compared a commercially available intermediate live IBD vaccine (iIBDV) with VAXXITEK HVT+IBD in commercial layers vaccinated after hatch and raised under field conditions. While layers vaccinated with the iIBDV vaccine developed bursa lesions and a significant decrease in the bursa-body weight ratio, VAXXITEK HVT+IBD-vaccinated layers did not show any lesions up to challenge infection with vvIBDV. After challenge VAXXITEK HVT+IBD vaccinated layers showed significantly less chickens with severe bursa lesions and less IBDV-antigen positive bursae than the iIBDV-vaccinated group ($P < 0.05$). These observations clearly show that protection developed faster in broilers vaccinated post hatch, but also in ovo vaccinated birds were capable of mounting a protective immune response shortly after hatch. Post hatch vaccination of layer chickens with VAXXITEK HVT+IBD under field conditions induced a better protection against vvIBDV-challenge by being less invasive than the commercial iIBDV strain tested in this experimental study.