

COMPARATIVE DYNAMICS OF THE HUMORAL IMMUNE RESPONSE ELICITED BY 3 INACTIVATED VACCINES AGAINST SWINE ERYSIPELAS AND PORCINE PARVOVIRUS: PART I

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BACKGROUND AND OBJECTIVES

The protective role of specific antibodies against Swine Erysipelas (SE) and Porcine Parvovirus (PPV) enhanced through vaccination is key to control infectious reproductive problems in sows¹. Therefore, the evaluation of SE-serological response enables to monitor vaccination compliance and product efficacy².

In this study, the comparative dynamics of post-vaccination antibodies elicited by three different commercial vaccines is evaluated in gilts during a whole reproductive cycle (170 days).

MATERIALS AND METHODS

A controlled, blinded experimental trial was performed with SE and PPV naïve gilts. Forty-two animals were randomly assigned to 3 groups (12 animals each) and control group (6 animals). Group 1 (G1), Group 2 (G2) and Group 3 (G3) were administered two intramuscular injections (at days 0 and 21) with vaccines A (ERYSENG® PARVO), B and C, respectively. Control Group received PBS.

SE serology was performed in serum using a commercial ELISA kit (CIVTEST® SUIS SE/MR). This kit's suitability to detect anti-SE antibodies without bias towards any of the vaccines was previously reported³.

RESULTS

At the beginning of the study, all animals were negative for SE antibody, and the Control Group remained negative for the duration of the trial. After vaccination, SE antibody titres in G1 were the highest throughout the study. Differences were statistically significant with titres in G2 from 21 days post-vaccination (dpv) to the end of the study, and with those in G3 from 21 to 147 dpv (Mann-Whitney U test; p -value<0.05). All vaccines showed the highest mean SE titres at 41 dpv (Figure 1).

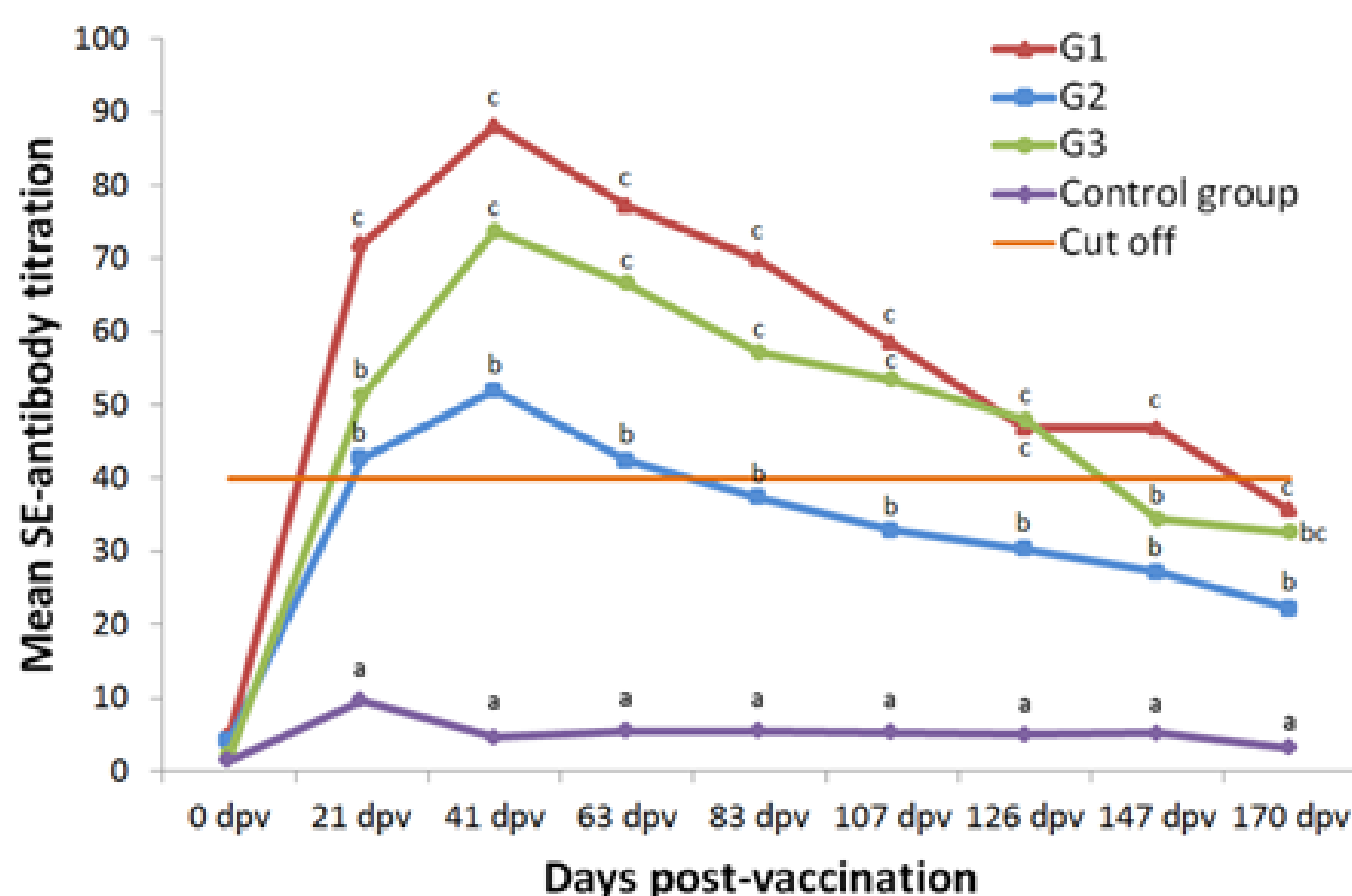


Figure 1. Mean SE-antibody titrations in sow sera. Different superscripts show statistically significant differences (Mann-Whitney U test; p -value<0.05).

The percentage of seropositive gilts in G1 reached 100% from 21 to 83 dpv, and $\geq 75\%$ until 147 dpv. G2 and G3 did not reach 100% at any time point. However, G2 showed $\geq 75\%$ seropositive animals only at 41 dpv, and G3 from 21 to 83 dpv. Statistically significant differences were recorded between the groups at several time points (Fisher test; p -value<0.05), always in favor of G1 (Figure 2).

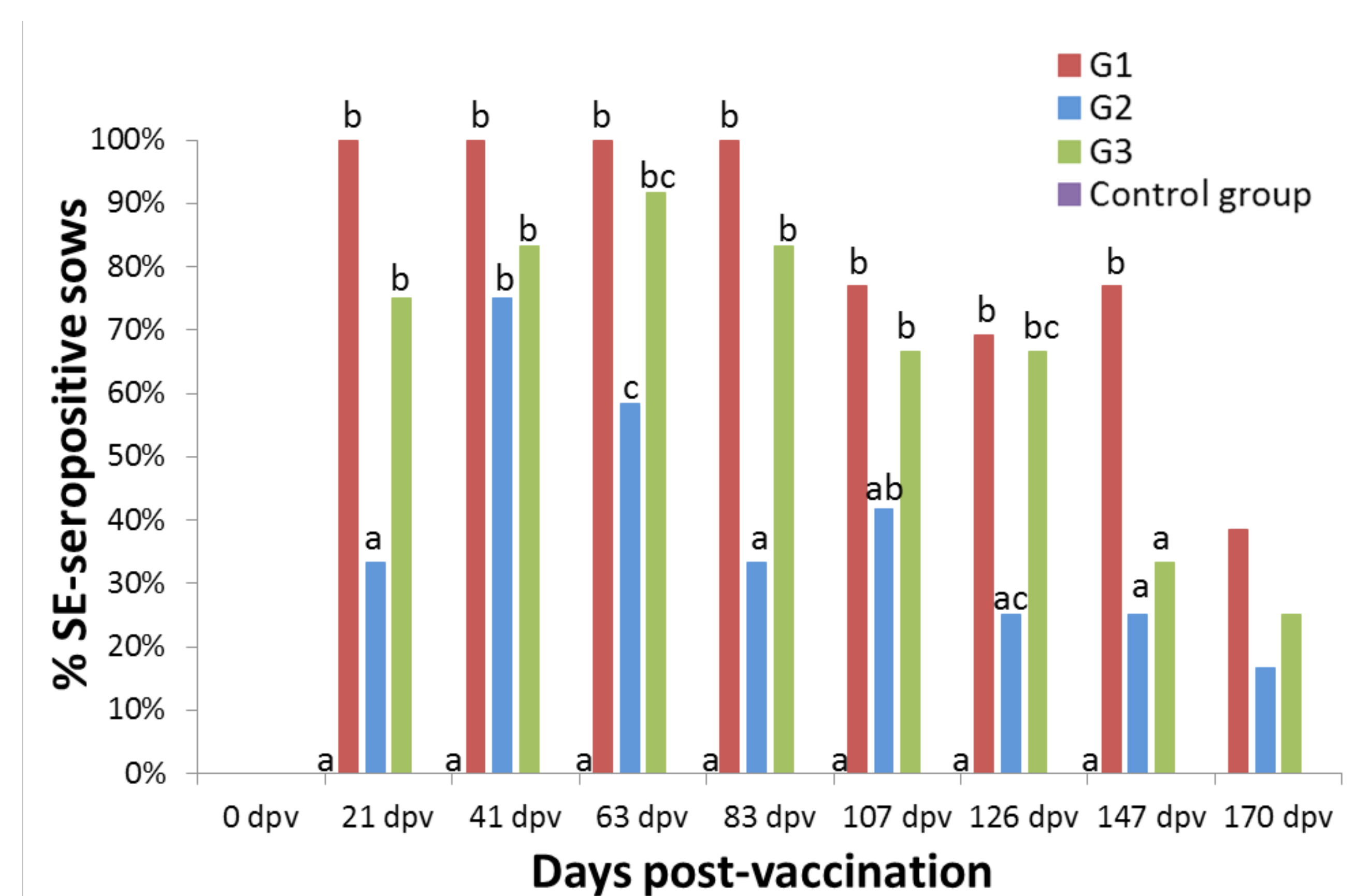


Figure 2. Percentage SE-seropositive sows during the trial. Different superscripts show statistically significant differences (Fisher test; p -value<0.05).

DISCUSSION AND CONCLUSIONS

In SE infection, both humoral and cell-mediated immunity play an important protective role in host. Humoral immune responses against SE elicited by the vaccines tested were different in intensity and duration. This suggested a different recognition of the antigen by the vaccinated sows, which could be associated with different vaccine compliances and efficacies. Seroconversion to SE after vaccination with ERYSENG® PARVO was faster, more intense and lasted longer than after vaccines B and C, covering the entire reproductive cycle.

ACKNOWLEDGEMENTS

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