Progressive atrophic rhinitis (PAR) is an important upper respiratory disease in swine. PAR affected pigs are often susceptible to subsequent complication of porcine respiratory disease complex (PRDC). In this study, serum neutralizing antibody titers were assessed in immunized sows and their offspring piglets.

Introduction

- Progressive atrophic rhinitis (PAR) is an important upper respiratory disease in swine.
- PAR affected pigs are often susceptible to subsequent complication of porcine respiratory disease complex (PRDC).
- In this study, serum neutralizing antibody titers were assessed in immunized sows and their offspring piglets.

Materials and Methods

- A vaccine composed of recombinant subunit PMTs was used in this study (Liao et al., 2006, Vaccine).
- Vaccination program of sows
  370 Sows Program I
  172 Sows Program II

- Vaccination program of piglets
  0-3-5 weeks after farrowing

- Serum neutralization assay

Results

Table 1. Percentage of protective serum neutralizing antibody titers (SN ≥ 1:16) of sows and gilts after farrowing in different vaccination programs.

<table>
<thead>
<tr>
<th>Sow</th>
<th>Program I (two shots)</th>
<th>Program II (one shot)</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multipara</td>
<td>80% (258/322)</td>
<td>76% (86/113)</td>
<td>79%</td>
</tr>
<tr>
<td>Gilt</td>
<td>31% (15/48)</td>
<td>36% (21/59)</td>
<td>34%</td>
</tr>
<tr>
<td>Average</td>
<td>74%</td>
<td>62%</td>
<td></td>
</tr>
</tbody>
</table>

Vaccination program of piglets

- 0 2 4 6 weeks of age

Figure 1. Serum neutralizing antibody titer of all sows after farrowing in different vaccination programs.

Figure 2. Program I was performed on pregnant sows in an outbreak farm. Serum samples were collected from sows within one week after farrowing. (n= 50)

Vaccine Efficacy in An Outbreak Farm

Figure 3. The neutralizing antibody titers of piglets from immunized sows at 1 to 12 weeks after birth. (n= 60)

Figure 4. Transverse snout sections of 4 pigs in the PAR outbreak farm collected before rsPMT-PM bacterin vaccine application showed moderate (score 3; ++++) to severe (score 4; ++++) levels of turbinate atrophy.

Figure 5. Six months after vaccination, 20 marketed pigs were randomly selected for snout section examination. Seventy percent of snout sections appeared normal (score 0; -), and 30% were slightly atrophic (score 1; +).

Conclusion

- Vaccination once or twice gave good protection in sows and their offspring piglets through maternal antibody up to 4 weeks.
- Vaccination of piglets provoked good protective efficacy in PAR outbreak farms.
- The new generation of AR-rsPMT vaccine is promising in controlling PAR in the field.

Acknowledgments

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