

SEROEPIDEMIOLOGY OF PORCINE PARVOVIRUS INFECTIONS IN BREEDING AGE SWINE
 B. THACKER, A. LEMAN, T. MOLITOR, T. STEIN, AND H. JOO
 DEPARTMENT OF LARGE ANIMAL CLINICAL SCIENCES
 UNIVERSITY OF MINNESOTA
 ST. PAUL, MINNESOTA

Porcine parvovirus (PPV) is commonly involved in reproductive failure in swine. Abattoir studies and diagnostic laboratory data demonstrate that PPV may be the most common cause of virus induced fetal wastage. Also, PPV-induced reproductive failure has been demonstrated experimentally. A recent study has shown that humoral antibodies are protective to PPV-induced reproductive failure. Likewise, it is believed that a seronegative animal is susceptible. If infection of a susceptible pregnant animal occurs during approximately the first half of gestation, reproductive failure may occur. The following studies were designed to determine the PPV serostatus of breeding swine with respect to age, sex, parity, and herd of origin with the intent to identify factors involved with population susceptibility.

Study I. Three serum samples were obtained from 100 farms. Serum was tested for the presence of PPV antibodies by HI test. The animals were of breeding age and were sampled for regulatory purposes. On an animal basis, 198 of 300 (66%) were seropositive. On a farm basis, 82 of 100 (82%) had one or more seropositive pigs.

Study II. Serum samples from breeding age swine collected for regulatory purposes were tested. Samples were categorized by age and sex. A total of 389 serums were tested by HI of which 193 of 389 (53.3%) were seropositive. Forty-five of 128 (26.8%) 6 months old animals were seropositive while 38 of 42 (90.5%) ≥ 12 month old animals were seropositive. 58.5% of the males were seropositive and 50.5% of the females were seropositive.

Study III. Serum samples were obtained from boars at slaughter. A total of 199 samples were collected of which 161 (80.9%) were seropositive. Eighty-seven of 102 (85.3%) large (> 500 #'s body weight) were seropositive while 74 of 97 (76.3%) small (< 300 #'s) were seropositive.

Study IV. Ovarian follicular fluid was sampled for antibody detection from 630 pregnant animals at slaughter. A previous study demonstrated that antibody titers in ovarian follicular fluid was similar to serum antibody titers. A total of 470 (74.6%) were positive. 85.6% of the sows and 66.8% of the gilts were seropositive.

Conclusions:

These studies indicate that a sizable population susceptible to PPV exists. Demonstration of greater susceptibility in younger animals supports the concept that the disease is primarily manifested in gilts, but the finding of susceptible older animals and sows indicates that PPV is not a disease of gilts only. The finding of Study I would indicate that some farms are PPV free. Also, the existence of PPV free farms is supported by the finding of negative large (herd) boars as exposure over a long period of residence in an infected herd is likely. These studies also indicate that attempts to reduce population susceptibility may be warranted.

Selected references: Kirkbride and McAdaragh: JAVMA, 1978, 172: 480-483. Mengeling and Cutlip: AJVR, 1976, 37: 1393-1400. Mengeling: JAVMA, 1978, 172: 1291-1294. Mengeling, et. al: AJVR, 1979, 40: 204-207. Thacker, et. al: AJVR, 1981, 42: 865-867.