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ARE PIGS WITH IRON DEFICIENCY LESS ABLE TO DEFEND AGAINST ENTEROTOXIGENIC *E. COLI* INFECTION COMPARED TO PIGS WITH ADEQUATE IRON STATUS?

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Introduction

Health problems often occur after weaning, a time when iron deficiency is commonly present. The objective of this research trial was to determine if iron deficient pigs were less capable of combating a challenge of enterotoxigenic *Escherichia coli* (ETEC) than pigs with adequate iron status.

Material and Methods

Ten pigs given 100mg (low-iron) and 10 pigs given 200mg of iron dextran (Uniferon®, Pharmacosmos) at Day 3 (medium-iron), and 10 pigs receiving 200 mg of iron at Day 3 and 14 (high-iron) were experimentally challenged with ETEC at 3 weeks of age. In addition an unchallenged control group with 2 pigs from each iron treatment group was included in the trial. All pigs were euthanized 2 days post-ETEC challenge and bacterial culture and histological examinations were performed.

Results

The average hemoglobin levels at 3-weeks of age were 85g/L, 104g/L, 124g/L for low-, medium- and high-iron, respectively. The control room of pigs did not shed hemolytic bacteria or have histological evidence of ETEC infection. Of the pigs challenged with ETEC, diarrhea was observed in 40%, 50%, 60% of the high-, medium- and low-iron, respectively. Hemolytic *E. coli* was cultured from 80% of all pigs. At necropsy adherent bacilli were observed in 50% of high-iron pigs and 60% of pigs in medium- and low-iron groups. Histological lesions were present in 70% of the high-iron and 80% in the medium- and low-iron pigs.

Discussion and Conclusion

Iron status at weaning was improved by administering an additional 200mg of iron dextran at 14 days of age and these preliminary results suggest iron status may help protect pigs that are challenged by ETEC. Further studies are ongoing.