STUDIES ON THE RELATIONSHIP BETWEEN THE SERUM GAMMA GLOBULIN LEVELS OF NEONATAL PIGLETS AND THEIR MORTALITY OR GROWTH DURING THE FIRST TWO MONTHS OF AGE: AN EVALUATION FOR THE AMMONIUM SULPHATE TURBIDIMETRIC METHOD

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In order to examine the relationship between the serum gamma globulin levels of neonatal piglets and their mortality or growth during the first 2 months of age, serum total protein concentrations, electrophoretic fraction concentrations, and turbidity readings (Kunkel's units) by the ammonium sulphate turbidity readings (Kunkel's units) by the ammonium sulphate turbidimetric method were investigated for 266 piglets in 27 litters at 12～18 hours after birth.

The results were as follows;

1) Wide variations in serum total proteins (from 2.7 to 8.6 g/100 ml), serum protein profiles, and Kunkel's units (from 0 to 44 units) were found in individual piglets.

2) A significant correlation ($r=0.9663$, $p<0.001$) was found between serum gamma globulin concentrations and Kunkel's units, indicating that the ammonium sulphate turbidimetric method is useful for the estimation of serum gamma globulin levels.

3) Kunkel's units of piglets were generally influenced by the birth order and birth weight within the same litter. Particularly, it was noted that low weight piglets at birth in the large littersize tended to give low Kunkel's units. It is considered that such piglets ingested little or no colostrum due to the competition among littermates at suckling.

4) The rate of loss (death and stunt) during the first 2 months of age was high in the piglets with low Kunkel's units and in low weight piglets at birth.

In conclusion, one of the most important causes of loss in baby pigs is perhaps that low weight piglets at birth tend to be hypogammaglobulinaemia during the neonatal period.