

ROTAVIRAL DIARRHEA ON LARGE PIG FARMS IN SLOVENIA

J. GROM, Z. VALENČAK, Z. ŽELEZNIK

VETERINARY DEPARTEMENT OF BIOTECHNICAL FACULTY, LJUBLJANA, YUGOSLAVIA

INTRODUCTION:

Rotaviruses are very common as a cause of diarrhea in young pigs in various countries and also in Yugoslavia (Woode and Bridger 1974, Rodger et al. 1975, Lecce et al. 1976, Bohl et al. 1978, Grom et al. 1980). There are very few informations about naturally occurring infection of pigs with rotaviruses. Rotaviral diarrhea most commonly occurs in one to eight weeks old pigs (Bohl 1979).

Our first detection of rotaviruses was established on a large pig farm with swine dysentery and where an outbreak of transmissible gastroenteritis was eradicated six years ago. Infection was spreaded within a swine herd mostly affecting pigs of about 50 kg. Morbidity of weaned pigs was high with low mortality.

The second detection of rotaviruses was on a selection farm where all breedings sows and piglets were vaccinated against *Escherichia coli*.

METHODS:

Faecal samples from diarrheic pigs were frozen at -25°C . For immuno-electron microscopy 20% suspension of faeces was prepared with Hank's solution, centrifuged 20 minutes at 6000 r.p.m.. Supernatant was mixed in equal volume with hiperimmune anti-rotavirus sera. After one hour of incubation at 37°C , mixtures were centrifuged one hour at 25 000g, supernatant was discarded, pellet resuspended in some drops of distilled water and put on Formvar coated grid. After cleaning with agar, specimens were stained with 2% phosphotungstic acid pH 6,8 and examined using a Jeol JEM -T 8 electron microscope.

Two one day old colostrum deprived piglets were intranasally inoculated with filtered IEM positive faecal suspension. Material originated from both farms.

Continuous cell line RPD cultures were inoculated with trypsin activated rotavirus from IEM positive faecal suspensions. In maintenance medium 10 per ml of trypsin was added in Eagle's MEM.

RESULTS:

Out of eight piglet faecal samples from the first farm in four samples rotaviruses were found by immuno-electron microscopy.

In nine of twelve samples originated from selection farm rotaviruses were detected. We have not able to demonstrate coronavirus in all samples.

In experimentally infected piglets diarrhea was developed within twelve to fourteen hours, 36 hours after exposition they were euthanatized. Rotaviral aggregates were found in intestinal content by IEM. By treatment with trypsin we have succeeded to propagate two rotavirus isolates on RPD cell line through six passages.

CONCLUSIONS:

On farms where enteric infection of piglets (*Escherichia coli*, TGE) were minimized or eradicated rotaviruses were established by immuno-electron microscopy.

On the farm where TGE was eliminated, few years later rotaviral diarrhea in piglets appeared. On the selection farm rotaviral infection was confirmed in sucklings and weaned piglets after vaccination of herd against *E. coli*.

Experimental infection on colostrum deprived piglets have clearly established porcine rotavirus as a etiologic agents of diarrhea on both farms.

REFERENCES:

- Bohl, E.H. et al.: Rotavirus as a cause of diarrhea in pigs *J. Am. Vet. med. Ass.* 172(1978)458-464
 Bohl, E.H.: Rotaviral diarrhea in pigs: brief review *J. Am. Vet. med. Ass.* 174(1979), 613-615
 Grom, J. et al.: Dokaz rotavirusov pri prašičih z drisko. *Zb. Biotehn. fak. Univ. E. Kardelja, Vet.* 17(1980) 165-169
 Lecce, J.G., M.W. King, R. Hock: Reovirus like agent associated with fatal diarrhea in neonatal pigs. *Infect. Immun.* 14(1976), 816-825.
 Rodger, S.M., J.A. Craven, I. Williams: Demonstration of reovirus-like particles in intestinal content of piglets with diarrhea *Aust. Vet.* 51(1975), 536
 Woode, G.W., J.C. Bridger: Causes of piglet enteritis *Ve. Rec.* 95(1974), 71.