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EPIDEMIOLOGICAL RESEARCHES IN AN ENDEMIC PRRS FOCAL POINT

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Summary

In the swine intensive breeding, new nosological entities, more frequently of viral origin, have appeared, composing a dominant component of the infectious pathology. From al these, the PRRS syndrome is clearly the most important one, which after its first official notice in 1997, in the USA, has been rapidly extending, having been also diagnosed in Romania.

The researches have been carried out in a farm with a closed circuit, a whole year, with the purpose of following up the dynamics of the disease. In order to achieve this, the following actions were taken: the epidemiological trial, clinical and anatomopathological examinations, and also serological and virusological tests.

In piglets, mortality was comprised between 10.29% and 21.4% and in young ones this parameter was comprised between 3.78% and 6.2%, characteristic for the mortality in endemic focal points.

Repeat breeders, another characteristic parameter of the disease, was monitored each month in sows, and calculated as a brute and relative value. This specific parameter had values of 10.72% and 30%, with a mean value of 20%, suggesting the genital form of PRRS syndrome. The annual evolution of this parameter associated with reproductive conditions (anoestrus, abortions, week piglets) is characteristic to the mentioned clinical form.

The serological exams carried out on serum samples, taken from young pigs and sows, confirms the disease in the monitored farm.

In the swine intensive breeding, new nosological entities, more frequently of viral origin, have appeared, composing a dominant component of the infectious pathology. From al these, the PRRS syndrome is clearly the most important one, witch after its first official notice in 1997, in the USA, has been rapidly extending, having been also diagnosed in Romania (2, 5, 6).

The researches have been carried out in the western part of the country, in a farm in which the disease has evolved endemically.

Materials and methods

The farm, in which the PRRS syndrome has evolved endemically, is a closed circuit one, with the production activity being organized in 3 sectors: nursery pigs, youngling, fattening.

The researches were carried out over a whole year with the purpose of following up the dynamics of the disease. In order to achieve this, the following actions were taken: the epidemiological trial, clinical and anatomopathological examinations, and also serological and virusological tests.

For the serological exams,trimestrial blood samples were taken, from piglets of 3-4 months of age and pregnant sows, and the postinfectious antybodies were determined using the immunoenzimatic test from a standardised kit.

Results and discussions

The researches undertaken for a year in a closed circuit farm have revealed the epidemiological and anatomopathological aspects of the endemic form of PRRS.

The epidemiological enquiery revealed that the disease was introduced in the farm thru the animals (sows and boars) acquired from the country and from imports, wich were carrying the virus. During the enquiery, the following parameters were followed up: morbidity in sucklings and young ones, the repeat breeders percentage, age of sick animals and presence of secondary bacterian infections.

The mortality, in sucklings and young ones, was calculated as an absolute and relative value (table 1) for each month and also as a mean value. In piglets, mortality was comprised between 10.29% and 21.4%, the mean value (15%) resembling that of other researches. In young ones, this parameter was comprised between 3.78% and 6.2%, with a mean value of 5.1%, characteristic for the morbidity in endemic focal points (1, 3, 5).

Repeat breeders, another characteristic parameter of the disease, was monitored each month in sows, and calculated as a brute and relative value (table 2). This specific parameter had values of 10.72% and 30%, with a mean value of 20%, suggesting the genital form of PRRS syndrome. The annual evolution of this parameter associated with reproductive conditions (anoestrus, abortions, week piglets) is characteristic to the mentioned clinical form.

The clinical exams, carried out on age batches, have shown symptoms in piglets (anorexia, weight loss and diarrhea) and especially in young piglets (fever, coughing, anorexia, nasal discharge, weight loss) which can be attributed to the respiratory form of the disease.

The anatomopathological exams carried out on piglet corpses, have revealed macroscopic lesions of the disease: fibrinous pleuritis, fibrinous bronchopneumonia, interstitial pneumonia and congestive, swollen lymphnodes, and also bacterial lesions. Microscopic lesions were observed in the lungs, lymphnodes and muscles. The lungs presented: thickening of the interalveolar septums with limfocitary infiltrate, bronchiole epithelia hyperplasia, powerful alveolar macrophages hyperplasia, lymphocyte and type 2 pneumocytes

intraalveolary disposed, destruction of alveolobronchial structure with cellular infiltrate.

In the lymphonodes, strong lymphocitary depletion in the paracortical area was noticed, and an intense giant cells hyperplasia, witch suggests an additional swine circovirus type II infection.

The spleen presented giant cells and syderocites. In certain skeletal muscle groups, hyalinization and wrinkling of the muscle fibers was observed, and also rare lymphocytes and macrophages situated interfibrillary.

The serological exams carried out on serum samples, taken from young pigs and sows (table 3), confirms the results of the epidemiological, clinical and anatomopathological exams and they show the moment seroprevalence of the disease in the monitored farm. These values resemble those from the literature on the endemic evolution of the disease (1, 4, 6).

Table 1

The mortality in suckling and young ones

month	mortality			
	suckling		young ones	
	Nr	%	Nr.	%
I	215	19.13	303	5.66
II	297	19.38	185	3.78
III	364	15.41	177	3.79
IV	403	13.26	270	5.44
V	429	14.31	280	4.85
VI	456	21.40	378	5.23
VII	350	14.58	320	4.77
VIII	269	12.75	327	5.32
IX	233	10.54	356	5.61
X	312	12.74	386	6.02
XI	285	11.63	334	5.66
XII	310	10.29	292	4.77

Table 2

The monthly evolution of repeat breeders in sows

month	Total breeders	repeat breeders	
		Nr.	%
I	420	126	30.00
II	362	67	18.51
III	316	48	15,19
IV	352	43	12.22
V	373	40	10.72
VI	308	48	15.58
VII	317	59	18.61
VIII	303	82	27.06
IX	372	91	24.46
X	403	117	29.03

XI	321	78	24.30
XII	415	87	20.97

Table 3

The moment prevalence of PRRS

CATEGORY	DATE	ELISA	
		Nr.	%
young ones	27.01.05	6	30
sows	27.01.05	7	35
young ones	05.07.05	5	25
sows	05.07.05	6	30
TOTAL SAMPLES		**24**	**30**

Conclusions

The epidemiological, clinical and anatomopathological investigations have reveled the characteristic aspects of the endemic form of PRRS.

The serological exam confirms the presence the PRRS syndrome and renders the moment seroprevalence of the disease in the monitored form.

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