LEPTOSPIROSIS IN PIGS IN THE AREA OF THE BAJIO, MEXICO

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INTRODUCTION

Leptospirosis in pigs is a bacterial disease which has been serologically diagnosed nationwide. In the pig breeding areas, it is important to get periodical information about the changes in the frequency and in the dissemination of serovars, since in these areas, animals, either from other parts of the country or from other countries, are constantly coming in.

The dissemination of leptospirosis is related to weather conditions, to the susceptibility of the host, and to the predisposition of each serovar to transmit the infection. In addition, on swine farms, the handling and sanitary measures being applied, the health condition of the hogs coming in, and the campaigns against the destructive fauna, must be considered. Due to these considerations, it is difficult to generalize the serological findings obtained on a farm or in a specific area. On the other hand, the health care policies in order to carry out studies to suggest the proper measures to control diseases that limit reproduction, are up to each state and to their associations.

OBJECTIVE

To find out the situation of leptospirosis in pigs in the hog breeding area in El Bajio (the low-lying ground area in Mexico), a retrospective study covering a five-year period (from 1996 to 2000), was carried out.

MATERIAL AND METHODS

The study included 1883 pigs sera. It is important to point out that the samplings were obtained to find out the situation of leptospirosis on farms in the pig breeding area of El Bajio, Mexico; therefore, animals of different growth, sows with different numbers of parturitions and breeders were included. Consequently, they did not correspond to the diagnosis of leptospirosis or of any other disease.

For the serological study, the microscopic agglutination test (MAT), described by the OIE and the OPS, was used, considering positive the sera titre of 1:100 or above, showed 50 per cent of agglutination or disappearance of cells through observation with a dark-field microscope. 15 different serovars of *Leptospira interrogans* were used; among them, the following were included: the Sinaloa ACR strain, isolated during an outbreak of abortions on a porcine farm, the UAM-H89 strain, obtained from an aborted calf in Tizayuca, an area dedicated to milk production, and the Palo Alto strain, isolated from a dog with clinical signs consistent to leptospirosis. All of them were identified by Doctor C. Bolin at the Mycobacterium and Leptospirosis Laboratory in Ames, Iowa, USA, with the restriction endonuclease analysis.

RESULTS

The serological analysis showed 46.4% (874/1883) seropositive. The dissemination according to the different serovars is described in the following table.

Percentage of pigs positive to the different serovars of L. interrogans in El Bajio, Mexico

Serovar	Percentage	Positives/total
bratislava	27.7	522/1883
icterohaemorrhagiae	14.8	280/1883
Cepa Palo Alto	14.2	269/1883
panama	12.0	227/1883
Sinaloa ACR	11.4	216/1883
grippotyphosa	10.5	198/1883
tarassovi	8.3	157/1883
Cepa UAM-H89	6.9	130/1883
hardjo	6.3	119/1883
pomona	4.5	86/1883
shermani	3.2	61/1883
wolffi	2.7	51/1883
hebdomadis	0.9	18/1883
pyrogenes	0.6	12/1883
canicola	0.5	11/1883

*strain isolated in Mexico

DISCUSSION AND CONCLUSIONS

The serovar *bratislava* has been recently identified as the cause of modifications in reproduction on farms in Northern Europe as well as in the United States of America. In this study, it turned out to be the most important leptospire since it showed the highest frequency. This is probably due to the importation of pigs from northern countries in recent years; this is also true because nowadays, this serovar is included in the antigenic battery.

On the other hand, in a recent study carried out on a porcine farm in Sonora, Mexico, a serofrequency of only 5.3% for *bratislava* serovars was identified, having the fifth place of importance in that study. In that same analysis, 14% for the strain Palo Alto was identified¸ similar to the one in this study. It is important to point out that in the sampling in Sonora, the strain Sinaloa ACR showed a frequency of 2.6%, seventh in importance; but in this study, it showed a frequency of 11.4%, fifth in importance.

It is worthwhile to mention that the serovar *pomona*, which has traditionally been considered as the most frequent and important leptospire in pigs, in this analysis turned out to be 4.5% of positive animals, similar to the analysis previously done in Sonora, in which a frequency of only 3.5% is indicated.

These results reinforce the idea that leptospirosis is a disease that has a regional development, since there are changes in the frequency of the different serovars according to the

way reproduction is performed, to the sanitary measures, to the moving of animals, and to the ecology, among others.

The results obtained in this study gave very valuable information to establish a program to control leptospirosis, because they showed the most frequent serovars in five years, during which different serological profile studies on the disease were carried out.

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