Swine vesicular disease (SVD) in Italy: results of the surveillance and eradication activities and alternative control strategies for disease management.

S. Bellini, G. Zanardi * & E. Brocchi. National Reference Center for Vesicular Diseases - Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna "G. Ubertini". Via Bianchi 9 – 25124 Brescia, Italy.

Summary
Since 1995 SVD surveillance plans have been implemented in Italy; the aim was to achieve eradication by means of a health status certification scheme. The central–northern parts of Italy have been certified SVD-free and have maintained this health status since 1997, while in the southern part of Italy the infection has been persistently detected in three different regions (Campania, Calabria, Sicily). The intensive surveillance carried out in the last decade has led to a better knowledge about SVD. The Authors describe the results of surveillance plans and the role of certain risk factors for disease occurrence, suggesting alternative control strategies for disease management.

Introduction

Since 1973, Italy has placed swine vesicular disease (SVD) in the list of notifiable diseases and, what is more, among the Diseases in List A of the OIE, given that it is clinically impossible to distinguish from foot and mouth disease, despite its benign course

In recent years, in the majority of outbreaks, the course has been subclinical; so it can rarely be diagnosed on the basis of clinical symptoms and it is necessary to resort to laboratory diagnosis. Nevertheless, EU legislation (92/119/EC) still requires that even the suspicion and the subsequent control measures are activated on the basis of clinical symptoms.

Italy is the only country in Europe in which SVD outbreaks are reported and, for this reason, surveillance and eradication programmes are still in progress.

This work examines the epidemiological situation of SVD in Italy, with particular reference to the last two years. Various considerations are made about the control measures adopted, on the basis of the knowledge obtained.

Materials and methods

In Italy, control activities for SVD began in 1995, with the implementation of a Plan that aimed at eradicating the disease by the end of 1996.

The Plan is updated annually according to the epidemiological situation and foresees: 1) a random serological check (P: 5%; CI: 95%) of the swine present in the farms; 2) the virological check on faecal samples taken from the dealers' premises; 3) check on imported animals. Virus detection implies declaration of outbreak and stamping out of all the animals present on the farm. Where there is only seropositivity, without viral isolation, all the seropositive animals are culled and the farms have to be re-accredited by means of a double-negative serological check.

Extraordinary control measures have been adopted at the regional level in cases of serious risks of disease spreading. During the year 2000, there were extraordinary plans in three regions: Lombardy, Calabria and Campania.

Laboratory diagnosis was carried out according to the methods foreseen by the O.I.E. standards manual.

Results

Serological checks: up until 2001, the results of serological surveillance showed a steady drop in the number of seropositive farms; in fact, the prevalence fell from 1,57% in 1995 to 0,45% in 2001. During 2002, a sharp increase in seropositivity was recorded (from 0,45% to 1,80%), which was the consequence of the high number of outbreaks in non-accredited regions and the subsequent spread of SVD to accredited regions.

Checks in dealers' premises: in 2002, 16,4% of the outbreaks (28) were recorded in dealers' premises, this rising to 40% (4) in 2003; this confirms that the dealers' premises are a critical point in the control of the disease and that they play an important role in the maintenance and spread of SVD.

Checking importation: checks on importation from other EU states have revealed sporadic serological positivity, but this has never been directly correlated to the animal consignment itself.

Accredited regions: at the end of 1996, the regions of Northern and Central Italy were accredited and, in subsequent years, the regions of the South have acquired the necessary health qualification, with the exception of Calabria, Campania and Sicily.

Reported outbreaks: between 1995 and 2001, the reported annual number of outbreaks varied from a minimum of 5 to a maximum of 25; the year 2002 proved to be exceptional, with 171 reports. Study of the antigenic profile of *enterovirus* strains isolated from the start of the Plan, did not reveal substantial differences; in fact, isolates belonged to group 4, SVDV that had been present in Europe since 1992.

In 2001, SVD was present in Campania, where there were primary outbreaks in dealers' premises and secondary outbreaks in fattening farms. The situation exploded in the course of 2002, when the disease was recorded in 11 regions and 171 outbreaks were reported, resulting in the slaughter of 10,000 animals. Southern Italy registered 78% (133) of these outbreaks, Central Italy 14% (24) and Northern Italy 8% (14). The number of slaughtered animals was higher in the North where the breeding farms are much larger. The morbidity level was 0,44%, while mortality was zero.

The vast majority (96%) of these outbreaks (164) were reported in the first six months of the year, during which time the disease affected initially only Southern Italy, later spreading to the Centre-North.

In the second half of the year, the disease was still being reported in the South (Calabria and Campania), where 7 outbreaks were recorded.

As far as farm types were concerned, 14 (8%) were breeding farms, 28 (16,5%) were dealers' premises and 129 (75,5%) were fattening farms, very often small in size and intended for home consumption.

The latter played a very limited role in the spread of the disease and proved to be a blind alley for its diffusion. However, the dealers' premises, especially in Southern Italy could spread the disease to a large extent, both at regional and extra-regional level.

In the first half of 2003 the disease is still present in the South, where 10 infection points (4 dealers' premises, 4 breeding farms and 2 fattening farms) have been reported, 4 of these being in Calabria and 6 in Campania. The disease had a

subclinical course and its presence was identified thanks to procedures foreseen in the Plan.

Extraordinary plans: in June 2002, SVD was reported in Lombardy region, which prompted great concern since the province affected (Bergamo) has a very high swine density. SVD was brought under control and eliminated in one month's work; despite that, an extraordinary Plan was drawn up to verify that the disease had been eradicated and to reacquire the accredited status. Serological checks were carried out, with negative results, on 1,162 breeding farms, 172 fattening farms and virological checks were made in all the dealers' premises (13).

In Calabria in 2002, a total of 467 breeding farms, 734 fattening farms and all the dealers' premises (15) were checked; in Campania, meanwhile, a total of 553 breeding farms, 194 fattening farms and all the dealers' premises (86) were checked.

Discussion

In the first months of 2002 SVD outbreaks were reported in accredited regions of Central-Northern Italy, which were rapidly brought under control and eradicated.

In 2003, there are still reports of SVD in Campania and Calabria, which have never reached the accredited status.

There are certainly factors that have contributed to the persistence of SVD in Italy, in particular:

- three regions of Southern Italy (Campania, Calabria, Sicily) have never obtained the accredited health status;
- despite the ban on transferring animals from farms of non-accredited regions to the accredited ones, there have been risk contacts, especially within dealers' premises;
- in some cases there has been illegal movement of animals;
- hygiene measures for direct prophylaxis in farms and transportation vehicles are not always correctly applied, albeit SVD virus is highly resistant in the environment;
- the disease is often subclinical and, anyway, has a benign course, for which reason those operating in the sector do not perceive its economic importance; they are awed instead by the commercial restrictions that follow the confirmation of an outbreak.

Community legislation (92/119/EC) requires that the suspicion of SVD and the subsequent control measures are activated on the basis of clinical suspicion, but this is not sufficient for the current subclinical course of the disease, which may be suspected, confirmed or excluded only on the basis of laboratory tests.

In addition, the conditions do not exist for including SVD among List A diseases of the OIE. In fact, it is a disease with low morbility, practically zero mortality, and with a tendency to limited diffusion. Should it appear in its clinical form, there are diagnostic tests available that enable rapid diagnosis and distinction from foot and mouth disease. In the light of these considerations, it would be appropriate to assess how realistic are the rigorous measures applied in case of outbreaks. In fact, the policy of *stamping out* is open to severe criticism, especially when adopted to control a disease that has a benign course and a limited diffusion potential. Therefore, there is a legitimate case for reconsidering the categorisation of SVD among the OIE List A diseases and reconsidering the relevant Community legislation in force.