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The monitoring of infectious diseases in Switzerland

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Summary

Since 1990 the surveillance of infectious equine diseases in Switzerland is provided by a monitoring-system („Equinella"). It involves fortnightly returns from more than 40 participants which are distributed throughout the country (practitioners, three laboratories, the two veterinary colleges, the federal stud and the army).
Equinella pursues the recording of viral, bacteriological and protozoal diseases and refers to equids of any breed and use; about 20% of the Swiss horse population of 50,000 horses is being monitored.
So far, most reports referred to infections of the respiratory tract (strangles, EHV-4 and influenza); EHV-1 and Borna occurred every year. CEM only was detected once in the swab of a horse tested for approval as a stallion. Rhodococcosis and borreliosis were reported for the first time within the scope of Equinella. Salmonellosis was found occasionally. EIA never occurred, and clinical cases of EVA were notified only last year. Piroplasmosis and ehrlichiosis came up as sporadic cases.

Keywords: horse, infectious diseases, epidemiology, prophylaxis, monitoring-system

Ein Monitoring-System zur Erfassung von Infektionskrankheiten in der Schweiz

Seit 1990 wird in der Schweiz die Erfassung infektiöser Krankheiten bei Equiden mittels des Monitoring-Systems "Equinella" durchgeführt. Etwa 40 Teilnehmer (Großtierpraxen, drei Laboratorien, die beiden veterinärmedizinischen Bildungsstätten, das Landesgestüt und die Armee) berichten im Abstand von 14 Tagen über das Auftreten von Infektionskrankheiten oder Erregern, geographische Verbreitung, Anzahl betroffener Tiere oder Bestände sowie diagnostische Methoden. Es werden circa 20 % der schweizer Pferdepopulation von 50 000 Tieren und darüber hinaus andere Equiden (Esel, Maultiere und gelegentlich Zebras) erfaßt. Das Bundesamt für Veterinärwesen gibt regelmäßig Mitteilungen über die gesammelten Daten heraus.
Es werden bakterielle, virale und Protozoen-Erkrankungen erfaßt. Die meisten beziehen sich auf Erkrankungen des Respirationstraktes (Druse, EHV 4, Influenza), deren Auftreten über die letzten Jahre konstant blieb. EHV 1 und Borna treten jedes Jahr auf, letztere aber nur in der Ostschweiz. Klinische Fälle von EVA wurden nur im letzten Jahr festgestellt. CEM trat einmal auf, bei einem importierten Hengst; Rhodococcose und Borreliose wurden im Rahmen von "Equinella" erstmals in der Schweiz diagnostiziert. Salmonellose wird gelegentlich gefunden, Ehrlichiose und Piroplasmose treten sporadisch auf. Es wurde bisher kein Fall von EIA bekannt.

Schlüsselwörter: Pferd, Infektionskrankheit, Epidemiologie, Prophylaxe, Monitoring-System

Introduction

The international exchange of horses is in the interest of the horse industry, but the increase in numbers and distances of horse-transports and the opening of borders bring about a higher risk of spreading contagious diseases *(Gipson* 1988; *Timoney* 1988; *Chirnside* 1993).
Minimising this risk is our task and prophylactic precautions require the quick identification of emerging problems; the surveillance at the local, national or international level plays an important role *(Hynes* 1967; *Anon* 1994). Effective surveillance requires an early, accurate diagnosis, followed by prompt reporting and detailed follow-up investigations to determine the source of the agent and hence the means of control *(Hynes* 1967; *Anon* 1994).
In Switzerland, a monitoring-system for infectious equine diseases exists since 1990; it is called „Equinella" and pursues the following aims:

- —The recording of contagious equine diseases in Switzerland and occasionally in neighbouring countries (France, Germany, Austria and Italy).
- —Analysis and interpretation of the collected data in relation to geographic and seasonal incidence.
- —Transmission of informations through national and international channels.

Materials and methods

Equinella depends on the principle of observational epidemiological studies, and viral, bacteriological and protozoal diseases are reportable (influenza (type A/equi-1 and -2), equid herpesvirus (1, 2, 3 and 4), EIA, EVA, CEM, strangles, rhodococcosis, salmonellosis, borreliosis, ehrlichiosis and piroplasmosis/ babesiosis).
Our system refers to all equids (horses, ponies, donkeys, mules, occasionally a zebra) but of course, most reports relate to horses; about 20% of the Swiss equine population of all breeds and purposes are monitored.
The participants in Equinella (about forty large animal practices, three diagnostic laboratories, both veterinary colleges, the federal stud and the army) are distributed throughout the country. The collaboration is optional and honorary.
The collecting of data normally occurs passively: participants report occurrence of clinical cases and results of laboratory examinations.
The following details are collected: disease or agent, geographical localisation, number of affected animals and stables and diagnostic methods.
Dissemination of collected information occurs every fortnight by means of a bulletin (Mitteilungen des Bundesamtes für Veterinärwe-

sen). Moreover, an annual report is written for all participants and further interested parties.
International contacts are maintained and every three months, a summary is sent to the International Collating Centre in Newmarket and also an annual report to the International Breeders' Meeting and the European Federation of Thoroughbred Breeders' Associations.

Results

The value of a monitoring-system depends directly on the reliability of its participants. On the average, slightly more than 60% of the possible reports were sent in; the distribution of the notifications during the years was fairly even. Most of the reported diseases refer to infections of the respiratory tract (EHV-4: 83 notifications, influenza: 74 notifications, strangles: 315 notifications). Strangles comes first both in number of infected animals (approx. 900) and geographical and seasonal distribution. An outbreak of influenza commenced at the beginning of 1995 and both race and riding horses were affected (35 notifications). Two isolates from different parts of the country were sent for typing to the WHO laboratory in London; the types were similar to each other and to eq/Fontainebleau/1/79 and closely related to eq/Newmarket/1/93.
EHV-1 (49 notifications) and Borna (21 notifications) also occur every year, but the latter only in the eastern part of Switzerland.
In the past 20 years, the prevalence of antibodies against EVA (4.8%) in the equine population of Switzerland was low (n = 2443) *(Weiss* et al. 1994). In the second half of 1994, positive results of examinations in horses being screened for export (n = 112) rose to 14%. This led to increased alertness and the diagnosis of several clinical cases (n = 19) from March of 1995 on for the first time since 1975; typical symptoms were noted, and the signs were from mild to severe. However, no abortions were reported, and both breeding-activities and sporting-events weren't curtailed.
CEM only was detected once in a swab from a Dutch horse tested for approval as a stallion.
Rhodococcosis (n = 3) and borreliosis (n = 2) were reported for the first time in Switzerland within the scope of Equinella. Salmonellosis is found occasionally (mainly S.typhimurium). Ehrlichiosis occurs almost yearly, but was confined to isolated cases (n = 13).
Piroplasmosis (B. equi and caballi, n = 46) appears mainly in animals in the border area of France and in imported horses, in single cases also autochthonously.

Discussion

The protection of our equine population from infectious diseases was the reason for introducing the monitoring-system Equinella, as effective surveillance can contribute to reducing animal suffering and economic loss (*Anon* 1994).
In our opinion, a system that proved to be useful for the record, analysis, interpretation and transmission of relevant data was established. No outbreaks of any meaning escaped our attention so far, and the percentage of the monitored population is much higher than in comparable systems of human medicine *(Bollag* et al. 1990; *Boillat* et al. 1991).
Of course, there are no measurable effects of such a system. However, we believe to have recognised some advantages and disadvantages.
Advantages of Equinella are:

- The collection of data is simple and inexpensive.
- The system is suitable both for actual information at short notice and for supplying results of more detailed investigations.
- Any questions and queries can be answered without much delay and supplementary investigations can still be carried out.
- The advisory service to customers is better, and the alertness in respect to infectious diseases remains alive.
- The findings facilitate a problem-orientated education.
- The results indicate necessity and importance of research projects.
- The principle of observational epidemiology allows for studies of a disease in its natural setting (*Wood* 1992) and is unobjectionable in regard to moral and ethic issues.
- The international exchange of information is not only valuable in regard to possible threats to the indigenous population; it also enhances our knowledge without coming to harm.

But we also had to experience some disadvantages:

- The number of cases of infectious diseases in Swiss horses is too low for making inferences as to seasonal and geographical dynamics.
- In many cases, the diagnosis was based on clinical findings only, and financial funds for further investigations are restricted.
- Confidentiality has to be adhered to; therefore, precise informations are not always available.
- For the responsible people, a publication bias exists. When few diseases occur (pleasant news actually), meager reports result. But when many problems arise, it coincides with an unpleasant epidemiological situation.

In conclusion, we consider the monitoring-system Equinella a useful tool for the surveillance of infectious equine diseases. However, to the best benefit of the horse-industry, international co-operation is absolutely necessary and should be enhanced.
This doesn't only form the fundamentals for the prevention of the spreading of contagious diseases. In future, it eventually also may deliver informations on the value of prophylactic and therapeutic measures (e.g. vaccinations) and reduce the necessity of antibiotic therapy with all its problems (e.g. drug-resistance and drug-bans). Moreover, it should allow for better epidemiologic control-measures without unnecessary restrictions of trade, sport and breeding.

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