

Two Years' Activity of the Veterinary Toxicology Attention Service of Lugo, Spain

Pérez-López M

Toxicology Area, Faculty of Veterinary Medicine,
Avda de la Universidad s/n, 10071 Cáceres, Spain

Nóvoa-Valiñas MC, García-Fernández MA, Melgar-Riol MJ

Toxicology Area, Faculty of Veterinary Medicine,
Avda de Madrid s/n, 27002 Lugo, Spain

ABSTRACT. The Veterinary Toxicology Attention Service was created at the beginning of 2001 as the first on-line toxicology service for veterinarians and animal owners in Spain. In the present study, data about the general functioning of the Service and the toxicological analysis and consultations performed are summarized. Canine-related cases constituted the main call group and veterinary practitioners represented half of the consultations. Coordination between all veterinary toxicology services in Spain and the rest of the European Union should improve this service.

In 1974 Dr Lorgue created the "Centre National d'Informations Toxicologiques Vétérinaires" (CNITV) in Lyon, France, which has become one of the most important Veterinary Toxicology Centers into the European Union (1). The experience obtained by this Service during these decades was considered necessary to be developed in Spain due to the general lack of such kind of toxicological information and support to veterinarians. However, similar experiences had not been implemented in Spain at the end of 2000, and information concerning veterinary toxicology could only be supplied by the National Institute of Toxicology or toxicology departments in the Spanish veterinary schools (2). Thus the Veterinary Toxicology Attention Service (in Spanish named "Servicio de Atención Toxicológica Veterinaria", SATVe) was created as part of the Veterinary Clinical Hospital "Rof Codina" at the Veterinary School of Lugo, University of Santiago de Compostela, situated in Galicia, NW Spain. The main purpose of this Service was to resolve the toxicological problems affecting veterinary practice, and in all the general situations involving the broad spectrum of toxicology, ie environmental contamination, toxicological spills, wildlife declines due to xenobiotics, and such concerns.

The SATVe was firstly presented at the XIV Spanish Congress of Toxicology in Murcia, Spain in September 2001. During the Veterinary Section colleagues from the other Veterinary Schools expressed great interest in this project. At that event, the SATVe introduced its general structure and functioning, thus representing the official beginning of the toxicology service. It must be recognized that toxicology colleagues from the CNITV of Lyon helped the development of this new project with their technical and scientific support, resolving a great variety of doubts which appeared along the way. In fact, the Spanish system was created according to the general structure of the French one. This could be the first step to create a coordinated network of national and regional centers in Europe, which could allow the interchange of information, techniques, and epidemiological and general data to improve the quality of advice and analytical services offered to all petitioners (3), and rendering the possibility of an European toxicovigilance web.

The SATVe is established around a complete and specialized computerized database (the program of which has been

patented), where more than 1200 foreign chemicals are referenced, and all consultations are individually and specifically treated by veterinary toxicologists. Associated with telephone consultations about specific toxicity of different chemical compounds, this Service is consulted and receives samples for the analytical detection of possible toxic agents to support the final diagnosis of clinical and forensic animal poisonings. In this sense, a laboratory for toxicological analysis is linked to the Service, and the detection, identification and quantification of a broad spectrum of xenobiotics is provided. This laboratory, associated with the Toxicology area of the Veterinary School, gives analytical confirmation that a suspected xenobiotic is indeed responsible for the specific animal poisoning.

This Service is mainly oriented toward people and animals living in Galicia, NW Spain, with a population of nearly 3 million people, but obviously other regions and even countries are welcomed to participate. The main purpose of the Service is to offer a telephone or e-mail response to all cases directly related to toxicology, not only with pets and farm animals but also with wild animals and environment contamination. The recent consultations concerning toxicological aspects of the toxic spill caused by the "Prestige" in the Galician Coast and the studies conducted to evaluate the degree of contamination of some seabirds affected by this accident are prominent current examples.

When handling calls concerning animal poisoning, history talking constitutes a vital skill because the SATVe is considered an on-line service. Owners must provide as much information as possible concerning the exposure (4) and the clinical case; ie, the type and amount of toxic agent, time since exposure, clinical signs of poisoning, and other facts. This information is entered into the database to help on future similar consultations. The aim of the SATVe is not only to help in animal poisoning or to give specific recommendations for medical management of poisoned animals, but also to provide veterinarians with specific xenobiotic information.

In following the general purpose of poison centers, which is playing an important role in the treatment of poisoned pets and other animals (5), the SATVe provides an immediately acces-

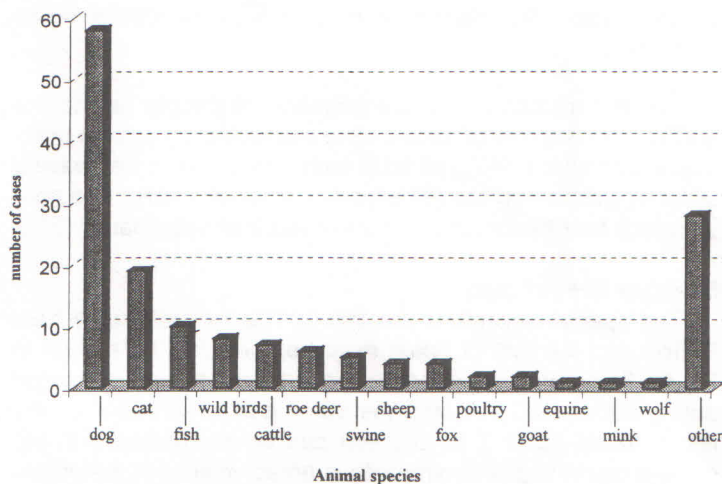


Figure 1. Animal species consulted at the SATVe. The group of "others" includes species such as domestic birds other than chickens and reptiles.

sible information service for clinical veterinary toxicology. In the present report, the results obtained during these first 2 y of activity are presented to offer information about chronic and acute poisonings in domestic and wild animals in NW Spain.

SERVICE REPORT

To ensure that the purpose of the Toxicology Service was consistent with the reality of the veterinary community, a trial was developed with some of the veterinary practitioners in the Galicia community considering the toxicological information and problems observed during their clinical activity. It was recognized that the main toxicology area of interest was with pets with special care also dedicated to wild animals. All practitioners were in accordance with this service, considering it as a valuable tool for their work. Specific meetings were also held with the SEPRONA Police (Service for the Nature Protection) and political agencies to offer them the Service.

The first step, after forming SATVe, was to send all veterinary practitioners, customer associations, ecological and welfare organisations in Galicia a brochure describing the general purpose of the Service, and the telephone number and e-mail address for contact. As the telephone constitutes the main tool for acute/emergency exposure enquiries, the majority of the consultations have been realized through that route, but the last few months increasing numbers of consultations by e-mail and fax have occurred.

The Service telephone number has become quickly known outside of Galicia, in part due to publication of specific reviews concerning Veterinary Toxicology (ie ethylene glycol and metaldehyde poisoning in pets, lead toxicity in cattle) which appeared in veterinary journals broadly distributed in Spain. These articles have been favourably received by the veterinary profession due to the general lack of information about Veterinary Toxicology in Spain. To better perform this activity, active cooperation with veterinarians has been realized, and when interesting toxicology cases were received in some veterinary clinics in the town of Lugo, the toxicologists of SATVe were called. This activity allowed the observation and discussion of

special cases with practitioners and encouraged future teaching, training and research efforts.

Call Origins

The most calls received at the SATVe in 2001 and 2002 have come from the 4 provinces which constitute Galicia (A Coruña, Lugo, Ourense and Pontevedra), representing more than 85 % of the received calls. After that are the Spanish Autonomic Communities of Castilla-León and Asturias, with 4 and 3 % of the total calls respectively. During these 2 y of functioning some international calls have also been received, representing about 2 % of total calls; these were from the nearest areas of Portugal, and as far away as Argentina.

Animal Species Involved

The distribution of animal species affected by toxic substances and referred to the SATVe are presented in Figure 1. Dogs represented more than 35 % of the calls and cats 12 %. This is in accord with that described by other authors for veterinary poisoning cases, where the most affected species are dogs and cats (5, 6). Most of the cases were individual poisonings, although in 4 pet-related cases poisoning affected to more than one animal.

Wild animals, such as roe deer, wolf and wild birds (raptors, waterfowl, songbirds) were related with the contacts with the Wildlife Recuperation Centre from Lugo, and associated to the use of illegal baits in hunting areas. Each case in which poisoning was suspected had samples of animal tissue or baits referred to the Toxicology Service.

There were few cases of cattle poisoning. Galicia is a region mainly dedicated to farm activities, with a population of more than 2 million cows. The low frequency of cattle-related calls may be due to the limited attention given to large animal toxicology in the countryside, even though these animals are in direct contact with the broad spectrum of toxic substances associated with traditional methods of husbandry. An extensive marketing activity has attempted to promote toxicology awareness to large animals owners and veterinary practitioners.

Type of Chemicals

When considering the etiology for the cases referred to the SATVe, strychnine (21 %), lindane (13 %) and the anticoagulant warfarin (10 %), are most common (Table 1). Heavy metal

Table 1. Agents most frequently referred as causes of toxic exposures to animals reported to the SATVe.

Strychnine	21%	Copper	3%
Lindane	13%	Ethylene glycol	3%
Warfarin	10%	Toxic plants	3%
Lead	6%	Processionary caterpillar	2%
Brodifacoum	5%	Zinc	2%
Alpha chloralose	5%	Phenylphenol	1%
Metaldehyde	4%	Ethoxyquin	1%
Primiphos-methyl	4%	Fenamiphos	1%
Aflatoxin	3%	Toad	1%
Atrazine	3%	Paraquat	1%
Cadmium	3%	Pyrethrin	1%
Carbofuran	3%	Cholecalciferol	1%

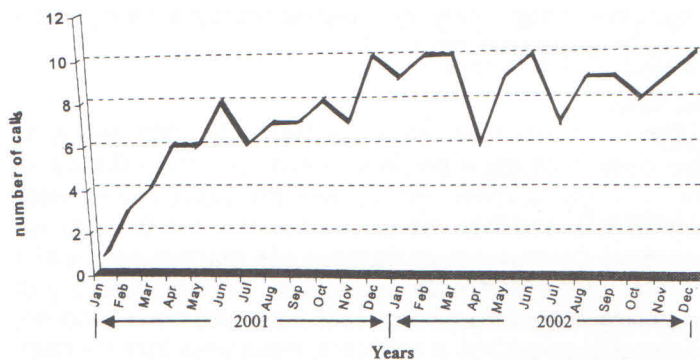


Figure 2. Monthly evolution of consultations received at the SATVe during 2001 and 2002.

poisoning (lead, zinc and copper-related cases) and toxic plants are frequent (holly, European oaks, English yew and ferns), but in NW Spain toxic plants do not seem to constitute a common cause of poisoning to animals. This could be caused by the higher number of pet related consultations, and that even in rural areas cattle, sheep and goat concerns do not frequently reach the Toxicology Service.

It is interesting to note the importance of strychnine, even though it is forbidden in Spain, and to point out the absence of positive analyses related to aldicarb, a carbamate insecticide which has increased use in agricultural practices in Spain (7). Other specific xenobiotics vary with different geographical regions depending on factors, such as the common specifically employed pesticides, regional crops, endemic fauna, and population density (8).

Type of Consultation

Calls received in the SATVe come from 3 main purposes: to ask for specific analysis (83%); to receive a clinical consultation involving adequate treatment (5%); and to obtain specific information, such as on the toxicity of houseplants, lethal doses of specific pesticides or the samples required for poisoning confirmation (12%). Clinical consultation is considered as those calls not to identify a xenobiotic but to help the practitioner to establish adequate treatment in case of clinical poisoning in some animals. In this situation, the enquiry tends to relate to immediate treatment and management of the case (9). When the purpose of the call is to obtain help to accurately identify a

specific xenobiotic affecting animals, this call is considered as "information".

When considering the identification of people calling the SATVe, the majority of cases were presented by private practice veterinarians (46% of total calls), followed in decreasing order by animal owners (31%), administration (18%), and consultations from health practitioners others than veterinarian (5%).

Monthly Breakdown

The special acceptance of the SATVe by the people from Galicia and the rest of Spain must be considered. As seen in Figure 2, a continuous increasing number of calls occurred during 2001 and 2002, and the same has been noted for the first 6 mo of 2003. This success can be associated with the intense marketing program, with a broad mailing to all practitioners in Galicia, and special meetings with authorities informing them of the general purpose of the Service—the general conservation and protection of the global environment. The Service is providing valuable help to veterinarians and the public in general to inform and educate people about animal protection and health.

REFERENCES

1. Keck G: Intoxications accidentelles et volontaires chez les animaux domestiques. *L'Eurobiologiste* XXXI 231: 23-29, 1997.
2. Guitart R, Manosa S, Guerrero X et al: Animal poisoning: the 10-year experience of a veterinary analytical toxicology laboratory. *Vet Hum Toxicol* 41: 331-335, 1999.
3. Motas-Guzmán M, María-Mojica P, Romero D: Intentional poisoning of animals in southeastern Spain. A review of the veterinary toxicology service from Murcia, Spain. *Vet Hum Toxicol* 45: 47-50, 2003.
4. Peterson ME, Talcott PA: *Small Animal Toxicology*. WB Saunders Company, Philadelphia, PA. 2001.
5. Hornfeldt CS, Jacobs MR: A poison information service for small animals offered by a regional poison center. *Vet Hum Toxicol* 33: 339-341, 1991.
6. Robertson ID, Dorling PR, Shaw SE: A retrospective study of poisoning cases in dogs and cats: comparisons between a rural and an urban practice. *Aust Vet J* 69: 194-195, 1992.
7. María-Mojica P, Motas-Guzmán M, Romero D et al: Usos y tipos de cebos para envenenar animales domésticos y silvestres: estudio retrospectivo 1992-2001. *Rev Toxicol* 18: 196-197, 2001.
8. Navas I, Motas-Guzmán M, María-Mojica P et al: Intoxicaciones accidentales e intencionadas en perros y gatos en el sudeste de España (1994-1996). *Rev Toxicol* 15: 110-113, 1998.
9. Lorgue G, Lechenet J, Rivière A: *Clinical Veterinary Toxicology*. Blackwell Science, Cornwall. 1996.