

SECTION 2

**ROLE OF VETERINARY PHARMACOLOGISTS
IN THE 1990s**

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Veterinary Pharmacology Defined

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It is difficult to define in any precise manner a discipline with which one has been involved for any extended period of time. This is so because there are many subtle aspects that come to mind which serve to confuse the issue. Additionally, it seems that the meaning of the term veterinary pharmacology is so self-evident to its practitioners that any attempt at definition will be fatuous.

Pharmacology is the experimental science which deals with the properties of drugs and their effects on living systems. Drugs are defined as articles recognized in the USP/NF; articles intended to be used in the diagnosis, mitigation, treatment or prevention of disease in human beings or animals; and articles other than food intended to affect the structure or function of the body. (Davis, 1988) Thus, pharmacology is one of the biomedical sciences which provide a general foundation for the rational use of drugs in the practice of medicine (human or veterinary). The adjective veterinary means: "designating the branch of medicine dealing with the investigation, treatment and prevention of diseases in animals, especially domestic animals." (Webster, 1979)

I would argue then, as I did at our last symposium (Davis, 1989), that veterinary pharmacology is primarily concerned with providing the scientific basis for the use of drugs in animal patients. The AVMA Council on Education has stated that the curriculum of an approved college of veterinary medicine:

- shall provide a sound foundation in the fundamentals of veterinary medicine. The professional degree curriculum must provide instruction in at least the following subjects as applied to the various species of animals: anatomy, physiology, pharmacology, microbiology, parasitology, pathology, herd/flock health management, prevent preventive medicine, public health, medicine, surgery, theriogenology and other recognized clinical specialties. The program

shall include instruction in professional ethics, humane stewardship of animals, client and professional relations and veterinary economics. Elective opportunities shall exist to permit students to pursue additional training in traditional disciplines and to be introduced to new fields and related subjects. (Anon., 1990)

It is clear from this statement that the veterinary colleges are obligated to provide instruction in pharmacology "as applied to the various species of animals." Over thirteen years ago I addressed the question of why we should have pharmacology training in veterinary schools when I stated, in part:

We would hope that veterinary medicine is a learned profession rather than a skilled trade. Implicit within this desire is the assumption that the student, practitioner and faculty understand the scientific foundations on which the art is based. The practice of rational therapeutics depends on an understanding of pharmacologic concepts. The degree to which a therapist misuses drugs is a measure of his lack of comprehension and appreciation of scientific principles, assuming that he is an ethical person. We must therefore continue to strengthen pharmacology in veterinary medicine and seek better ways to emphasize and reinforce scientific fundamentals throughout our curricula. In succeeding, we will increase understanding, improve patient care, and minimize risks to the community. (Davis, 1977)

It is evident that veterinary pharmacology is a specialized subdivision of general pharmacology whose focus of concern is ultimately the application of pharmacologic methods and knowledge to the

resolution of the medical problems of animals. The adjective defines the purpose and scope of the subdiscipline. Veterinary pharmacologists serve the purposes and needs of the veterinary medical profession (Davis, 1984; Davis, 1989). In this service, veterinary pharmacology is a broad discipline whose distinguishing characteristic is an understanding of the characteristics of species differences in the effects of drugs. This is necessary because our profession is concerned with the treatment of diseases occurring in all animals with the exception of human beings. Curtin (1988) expressed this idea very well in a somewhat broader context. He stated:

"Academic veterinary medicine is a community united by a common past, an enduring purpose and a common hope for the future. We are not an aggregate, but a union sufficient to meet the purposes, goals and objectives of the veterinary profession."

Curtin further stated that:

"We must not lose the perspective that academic veterinary medicine is a complex, unique health profession, and that our purview is broad and important. Only veterinary medicine has been entrusted by society with animal health maintenance. Because only we are given that charge by law, we must continue to retain that responsibility as the prime goal of our future. We are responsible to the society by whose authority we are licensed."

Veterinary pharmacology is a broad discipline which includes veterinary comparative pharmacology (sometimes referred to as basic pharmacology), veterinary clinical pharmacology and that aspect of veterinary toxicology which is concerned with the toxicity of drugs. (Davis, 1988) The definition of veterinary clinical pharmacology will be discussed later in the Symposium but I would like to present briefly my view of veterinary comparative pharmacology. Many pharmacologists study the effects of drugs on animals but only a few would claim to be veterinary pharmacologists. The difference lies in the purposes of the investigator. If the scientist is investigating some aspect of

pharmacology in experimental animals with the objective of gaining knowledge to improve drug treatment of the target species then it would be in the realm of veterinary pharmacology. On the other hand, where animals are being used as "models" for human diseases, and the scientist's interests are not related to the ultimate use of drugs in the treatment of animal diseases, I would not regard this activity as being within the realm of veterinary pharmacology.

In summary, veterinary pharmacology is a specialized division of pharmacology which is concerned with the discovery and application of knowledge of the effects of drugs in animals to the use of drugs in the practice of veterinary medicine.

References

- Anonymous (1990). *1990 AVMA Directory*, p 631, Am Vet Med Assoc, Schaumburg.
- Curtin, T.M. (1989). How do we overcome the limiting factors in developing a national strategy? *J Vet Med Educ* Special Issue. Proc. 10th Sympos on Vet Med Educ p 13-16.
- Davis, L.E. (1977). Pharmacology training in schools of veterinary medicine. *Fed Proc* 36: 119-123.
- Davis, L.E. (1984). Veterinary pharmacology and therapeutics - Quo vadis? *Proc 4th Sympos on Vet Pharmacol and Therap* p 2-6, College Station.
- Davis, L.E. (1988). Veterinary pharmacology: An introduction to the discipline. In *Veterinary Pharmacology and Therapeutics* Eds. Booth, N.H. and McDonald, L.E., 6th edn. p 5. Iowa State University Press, Ames.
- Davis, L.E. (1989). Veterinary and comparative pharmacology: A personal philosophy. *Proc 6th Sympos on Vet Pharmacol and Therap* p 97-101. Blacksburg.
- Webster, N. (1979). *Webster's New Universal Unabridged Dictionary* 2nd edn p 2034. Simon & Schuster, New York.