

Role of Veterinary Pharmacologists in the Pharmaceutical Industry

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Introduction

I appreciate and welcome the opportunity to speak to this 7th Biennial Symposium of the American Academy of Veterinary Pharmacology and Therapeutics. My topic, the role of veterinary pharmacologists in the pharmaceutical industry is of considerable interest to me and hopefully will be of interest to some of you. My intent is to define the roles of veterinary pharmacologists in the pharmaceutical industry and also to share some of my thoughts about how we can make sure individuals are properly prepared for these roles.

Specific Roles in the Pharmaceutical Industry

For veterinary pharmacologists, the pharmaceutical industry must be considered as at least two different segments, human pharmaceuticals and animal health products. Within the human drug segment, the veterinary pharmacologist will most likely play the role of a basic researcher. Activities may include screening large numbers of compounds for specific pharmacological activity in animal models or *in vitro* systems. In addition, one might be involved in defining the pharmacological profile of a new drug. A few veterinary pharmacologists are employed by some human pharmaceutical companies to monitor adverse reactions of marketed products. In order to qualify for one of the above positions, the veterinarian should also possess a Ph.D. with a strong emphasis in fundamental and experimental pharmacology. Collaborative studies with a medical pharmacology group would be very beneficial to a veterinary pharmacologist interested to enter the human pharmaceutical industry.

The veterinary pharmacologist in the animal health industry is probably of greater interest to this audience and the opportunities are obviously much greater and more varied as compared to the human pharmaceutical industry. The role of basic researcher is also present in the animal health industry but to a

lesser extent. The reason for this should be apparent in that new drug discovery is a vital part of the human segment while the majority of new animal drugs are by-products of the human pharmaceutical industry. The veterinary pharmacologist's role in preclinical and clinical research is much more prevalent in the animal health industry. These research activities are focused on product development and include efficacy and safety trials as well as field or clinical evaluations. Post marketing clinical trials are often necessary with animal drugs in order to develop market support data. Such trials may be designed to compare a newly approved drug with established competitive products or to evaluate the performance of the new products in special commercial situations or management systems.

Another role for veterinary pharmacologists in the animal health industry is in professional or technical services. These activities are highly focused in the clinical setting. Professional services personnel provide advice about the proper use of drugs to practitioners and in some cases to animal owners, investigate reported adverse reactions which also include lack of efficacy complaints, and conduct market support trials. Other activities include presenting professional and technical seminars, preparing product brochures or technical bulletins as well as manuscripts for publication. Interaction with the sales, marketing and product development departments is another important activity for the professional services veterinarian.

Regulatory affairs is yet another role for veterinary pharmacologists in the animal health industry. These individuals may be responsible for preparing New Animal Drug Applications (NADA's) for submission to the Food & Drug Administration/Center for Veterinary Medicine (FDA/CVM) providing quality assurance for safety and efficacy trials as well as close interaction with the FDA/CVM regarding the NADA approval process.

From the forgoing discussion of the role(s)

of the veterinary pharmacologist in the animal health industry, it is apparent that a strong interest, aptitude and experience in clinical pharmacology and clinical medicine are very important. A veterinarian with a masters degree is often an excellent candidate to enter the animal health industry. This assumes the graduate study focused on clinical pharmacology and medicine as well as practical trial design. A Ph.D. program along with the veterinary degree is highly desirable for basic and preclinical research and, if the graduate program is inclusive of clinical considerations of pharmacology and medicine (many are not) this individual is also highly qualified for all roles in the animal health industry.

Preparing Veterinary Pharmacologists for the Pharmaceutical Industry

We can do a better job of preparing veterinary pharmacologists to enter the pharmaceutical industry; that is, for those individuals who might be interested in such a career. All too often the idea of a career in the pharmaceutical industry is an after thought rather than the fulfillment of a well conceived and planned goal. Worse yet, many individuals think of the pharmaceutical industry after other endeavors have become trite or unsuccessful. After having interviewed and/or read curricula vitae of numerous applicants for positions in either clinical research or professional services, I have come to the conclusion that very few of these individuals had set a conscious goal to pursue a career in the pharmaceutical industry. As a result, many of the applicants were not well prepared to fill the positions. This conclusion is especially true for veterinarians in general but unfortunately it also applies to a number of veterinary pharmacologists. Graduate students and graduate faculty need to pay more attention to establishing realistic goals and designing programs to allow the attainment of those goals. Realistic goals are difficult to establish without having sufficient information. Adequate information is needed to better understand one's abilities, aptitudes, motivations, values and limitations. One needs adequate information about career opportunities; what are the employer's expectations, the demands and rewards of the job, what are the opportunities for advancement and professional fulfillment? This information can be obtained; one must make the effort to find the sources.

Finally I would like to make some further comments about the professional and graduate and

undergraduate education process. The New York Times recently published an article entitled "Physicians Endorse More Humanities for Premed Students" (Altman, 1989). The article cited a survey of physicians conducted to obtain views of their own undergraduate education. "The doctors said they wished they had taken more courses in the humanities and said they took too many science courses that were not needed in their daily work. Moreover, many physicians said their undergraduate education did not provide them with enough skills in dealing with people. The doctors said they took a heavy dose of science, particularly chemistry, at the expense of the humanities to improve their odds of admission to medical school."

The Pew Report entitled "Future Directions for Veterinary Medicine" contains a table of Desirable Characteristics of a Veterinary Graduate (Prichard, 1989). Some of the listed characteristics include:

- skill in oral and written communication
- integrated general understanding of the world, its culture and people
- possess problem solving and critical thinking skills

In discussing graduate education for the veterinarian, the Pew Report states: "Most graduate programs would profit immensely if stronger ties were developed with other departments and colleges on the campus and with nearby medical schools. The graduate years are the time to acquire new techniques, new perspectives, new insights, and new visions".

I believe we are doing an excellent job of training scientific professionals but we need to do a much better job of educating people to prepare them for the many roles available to veterinarians, not only veterinary pharmacologists for the pharmaceutical industry but for all aspects of the veterinary profession.

Bibliography

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