

EXPLORING NEW FRONTIERS IN COMMUNITY PHARMACY PRACTICE.



EMERGING ROLE OF COMMUNITY PHARMACISTS IN VETERINARY MEDICINE

BY DR ADEBODUN SANYAOLU

The approach involves taking a look at

- The Need for Collaboration between the Community Pharmacists and Veterinarians.
- Factors Limiting involvement of Community Pharmacists in Veterinary Practice.
- Recommendations

Community pharmacist's role involves ensuring optimal veterinary service delivery or the benefit of both man and animals and to create awareness on the available opportunities in veterinary practice.

There are two levels of Participation of Pharmacy in Veterinary Practice. They are

1. Veterinary Pharmacist : the traditional Pharmacist who supports the needs of the veterinarians.
2. Veterinary Pharmacy Specialist –Pharmacists who practice solely in Veterinary Pharmacy.

Role of The Veterinary Pharmacist.

The roles are

- To Maintain References And Formularies Dealing With Veterinary And Human Drugs
- Provide Drugs Information To Both The Pharmacists And Veterinarians.

The Veterinary Pharmacy Specialist will need greater depth In Physiology, Pharmacokinetics, Animal disease States and Clinical Learning.

The Challenge is in Skill Acquisition on how best to prepare current and future Pharmacists to assist veterinarians in providing pharmaceutical services to large, small, aquatic, wild and exotic animals

HISTORY

- ❖ In the pre- 1973 era, management of veterinary drugs revolved around the Federal and State Governments. However from 1974 there was involvement of Multi-nationals pioneered by Pfizer. In 1996, there was the emergence Of Drug Control activities by NAFDAC and PCN.

VETERINARY PHARMACY PRACTICE

NIGERIAN VETERINARY DRUG LAWS are

- Pharmacy Laws Of 1947
- Food & Drug Decree 1993
- NAFDAC Decree 1993
- Drug & Related Product Decree 1993
- Drug Provisional Act 1988

Ensuring optimal effectiveness and safety in the distribution and use of veterinary drugs requires knowledge, understanding, judgment procedure, skills, handling, control and ethics. It involves provision of balanced diet to the animals, exposure of consumers to animal products prevention of diseases from animals to man, well-Being of man (companion animals, security, entertainment) and economics.

CHALLENGES OF VETERINARY PHARMACY

They include

- Specialized nature Of veterinary Pharmacy
- Inadequate exposure to veterinary Pharmacy
- Apathy of members
- Suspicion of other Professionals
- Unstructured nature Of Animal health-care delivery system.
- Specialization difficulty in veterinary Pharmacy.

The prospects of veterinary pharmacy is bright especially as it involves appreciable livestock population (Poultry, Sheep, Cattle, Pigs, Goats etc.), companion animal species (Pets), entertainment and game animals (Horses) and security animals (Dogs)

Common Therapeutic Segments in veterinary pharmacy include

- Biologicals
- Oral and Injectable Antibacterials
- Other Antimicrobials
- Anti-protozoans
- Multivitamins/Mineral supplements
- Anti-parasitocides
- Feed additives

There is unique variation in veterinary pharmacy based on the following reasons:

- Anatomical And Physiological Specie Variations in animals
- Understanding of unique anatomical, metabolic and behavioral aspects of each specie is necessary

The veterinary Pharmacist must combine a wide knowledge of drug chemistry, pharmacology & toxicology

PHYSIOLOGICAL SPECIE VARIATION IN ANIMALS

TEETH

Anatomical variation in teeth structure in different animals determine route of drug administration

- Cattle & Sheep

- No incisors on upper jaw

This allows for ease of oral drug administration

- Pigs & Dogs

- Sharp incisors and canines

This makes direct oral drug administration difficult. Drugs therefore are administered parenterally or in feed and water

- Chicken

- No teeth: Drug administration is therefore in feed and water. Drugs are also administered parenterally.

DIGESTIVE TRACTS

Ruminants

- The digestive tracts adapted for storage, breakdown of vegetable materials and the absorption from the intestines
- They possess complex stomach unlike the simple stomach of man. Their stomach has 2 major parts with a total of 4 compartments. The complex stomach and digestive processes are strong variations.

The implications in veterinary pharmacy is that caution must be taken in the oral application of antibacterial as prolonged and indiscriminate use results in sharp reduction of ruminal bacteria tilting the balance of floral . Adequate attention must also be placed on oral drug potential loss in the rumen.

CARNIVORES: (e.g Dog)

Have True-stomach For Enzymatic Digestion. The implication of this is that the gastrointestinal tract is suitable for most oral applications as in Human. However great care in must be administration due to strong biting habit.

BIRDS

The process of digestion differs considerably from that of mammals. The beak to esophagus has a large dilation known as the crop, the gizzard to small intestine is similar to that of mammals. The implication of this is that oral drug application is usually through feed and water. There is no problem with oral antibiotic application and parenteral drug application also in use.

BASIC FACTORS IN ANIMAL DRUG APPLICATION

Factors which determine dosage in animals involve

- Body size/weight, genetic factors, specie variation, alimentary anatomy, age, sex, timing, pathology, tolerance, temperature, indication and bioavailability

Factors affecting drug distribution in animals are protein binding, binding to other sites, drug dilution, physico-chemical factors, specialized barriers, redistribution and drug storage.

Factors affecting drug metabolism in animals

Metabolic enzymes are abundant in the liver. Drug detoxifying activities take place in the kidneys, lungs, blood, liver and gut content. Biotransformation can yield intermediate product with increased activity, e.g pro-benzimidazole thiophanate.

Enzymatic differences are responsible for specie variations in metabolism (cats lack glucoronide forming enzymes hence their susceptibility to phenolic substances).

Other factors affecting metabolism are enzyme induction (leading to drugs tolerance and diminishing response to barbiturates due to increase in metabolizing enzymes), sex (slower drugs metabolism in female due to depressant action of estrogens), age (low drug metabolizing activity in the young). Environmental temperature have an effect on enzymatic activity e.g reduction in lethal dose of Amphetamine in cooled mice. Nutrition also plays a role in metabolism of drugs in animals e.g. liver damage in under-fed sheep given carbon tetrachlorode.

ROLE OF ACPN IN THIS EMERGING TREND

- Serve as resource for an exchange of ideas on this specialized area of pharmacy
- Encouragement of members to expand to the field of vet. pharmacy
- Skill enhancement in dispensing medication for the treatment of animal sicknesses.
- Provision of business development strategies
- Post training programmes such as certificate programmes (in collaboration with vet schools), strengthening of mandatory continuing education programmes and elective experience in veterinary practice centres.
- Curriculum enhancement: pharmacy educators should design and build competencies and objectives required to ensure mastery of veterinary pharmacy practice.



