

A Comparative Analysis of Cost and Affordability between Veterinary and Human Pharmaceutical Drugs in India

Prashanthi.M.R¹, Shreelakshmi.S², Prabu.D³, Rajmohan.M⁴, Bharathwaj.V.V²,
Sindhu.R², Dinesh Dhamodhar⁴, Suganya.P¹

¹Postgraduate Student, ²Senior Lecturer, ³Head and Professor of the Department, ⁴Reader,
Department of Public Health Dentistry, SRM Dental College and Hospital, Ramapuram

Corresponding Author: Prabu.D

ABSTRACT

To analyze the comparison of cost and affordability between veterinary and human drugs in India. A comparative study was conducted in two regions of Chennai based on a simple random sampling technique. Both Veterinary and human drugs were collected from private veterinary and Human drug pharmacies. Price and availability data of veterinary medicines and human medicines were collected from private sector retail pharmacies. As per the data analysis, descriptive statistics are used. The comparison of various antibiotic, anti-helminthic, anti-inflammatory, anti-fungal, anti-histamine, anti-tick drug prices used in humans and Animals. The variation of a single unit Amoxicillin drug for veterinary costs Rs.30 whereas in Humans, the same drug costs to Rs.18.6. Cephalexin, ciprofloxacin, Sulfamethoxazole, tetracycline, clindamycin drugs showed a higher cost range in veterinary than in human drugs which had a difference of Rs.9 on average. Doxycycline, Chlorpheniramine, aspirin, Clotrimazole were the only veterinary drug cheaper than their similar human combination. The veterinary drugs are too expensive and we must take certain steps to avoid those high prices. Drug Regulation policies must be implemented for a veterinary drug similar to a human drug.

Keywords: Veterinary Drugs, Human Drugs, Price, Affordability

INTRODUCTION

Effectual and consistent animal health service organized a crucial role in development in India. Simultaneously, human drugs also play an important role in economic development in India. Most of the foreign nations along with India have developed their ownership for veterinary services to reinforce the best output of the drugs, not only for the benefit of the manufacturer, but also for the veterinarians and overall economic raise of humans, animal husbandry and natural frugalities. For instance, in countries such as the United States and Morocco, where the privatization programs were proved to be successful, the rate of veterinary services is improvised. However, there is a great discrepancy noticed in the prices of animal drugs in many developing countries which is often high and almost the income level of the pet sitter. In contrary to the pricing system for pharmaceutical companies or distributors, the pricing system for veterinary drugs for the private sector has no pricing policies or regulatory mechanism¹.

It is quite evident that recent technological advancements in health care system have resulted in many dynamic changes in treating diseases and progression in the quality of life. The trend in the expenses of pharmaceuticals have accelerated rapidly compared to other major segments of health sector for the past ten

years. Accordingly, the evolution of recent medical technology and increasing health care expenses have focused majorly on the pharmaceutical industry, which is not only a critical aspect in the health care sector, but also a major source of technological health care advancements².

Veterinary medicines and human medicines are commonly demarcated as yields that are purposed to practice in animals and humans for limited purposes. These desires consist of the diagnosis, cure, alleviation, administration, treatment or prevention of disease in animals and humans. They can also include the alterations of the function of an animals and human bodies, such as augmenting the growth promotion. Substances used as veterinary drugs and human drugs can include chemicals, viruses, toxins, vaccines, bacteria's, allergens, antibiotics, antitoxins, toxoids, immune-stimulants, cytokines, antigens, diagnostic components of natural or synthetic origin, genes or genetic sequences, carbohydrates, proteins, and other substances. Such substances could be injected, ingested, inhaled, and absorbed, including through water³.

The veterinary drugs in India are supplied in various categories such as wholesalers, local traders (provincial drug stores) and merchandising outlets (drug shops) which interface regularly with rural and urban pet sitters. In the country side communities, therapeutic companies emphasize on selling deworms, ectoparasiticides, antibiotics and vaccines with a limited number of packages. Sometimes, there is a nominal charge guideline along with the supply of products, therefore the pharmacy shops chose generic drugs which are of low price compared to the regular high priced drugs. In spite of being affordable to the rural communities, the quality of generic drugs is comparatively inferior. These generic products might augment the resistance of microbes to humans and animals, remain as remnants in milk and meat, chronic ailments and death⁴.

FDA (Food and drug administration) in the ability for defining the eminence (prescription, over-the-counter) of animal drug merchandises to formulate abundant directions for procedure underneath which a layman can use the drugs safely and effectively. Prescription (Rx) products can be allocated only by or upon the permitted written receipt of an authorized veterinarian and general physician. Precautionary measures include safety to the animal, the safety of food products derived from the animal, safety to the persons associated with the animal, and safety in terms of the drug's impact on the environment⁵.

Medical drugs are established to accomplish a natural activity. The mode of action of most pharmaceuticals on humans and animals is often poorly understood, especially the potential effects on non-target organs (side effects). Moreover, the combination of drugs might produce synergistic effects. The establishment of a new drug requires a major investment of capital, human resources, and technological expertise. It also requires strict accordance with regulations on standards of testing and manufacturing before a new compound can be introduced to the general population⁶.

The price of medicine is considered one of the most important hinderances to access the product. Significantly, the acquisition of drugs is contributing to the health care financial plan among developing countries, and drug expenditures may amount to 50%-90% of non-personnel expenses. So, this current research aims to assess the affordability and cost efficiency of both human and veterinary drugs.

MATERIALS AND METHOD

A comparative study was conducted in two regions of Chennai based on simple random sampling technique. Both Veterinary and human drugs were collected from private veterinary and Human drug pharmacies. Price and availability data of veterinary medicines and human medicines were collected from private sector retail pharmacies. A Proforma for collection of

average drug expenses data was used to document the information from drug stores. Retail veterinary drug shops that were most frequently visited were selected as research tools for the collection of data. The ethical approval was obtained from the ethical committee of the SRM Dental College, Ramapuram, India, approval number SRMU/M&HS/SRMDC/2020/PG/004. As per the data analysis, descriptive statistics are used.

Inclusion Criteria

- Drugs available during the time of visit are included
- Most frequently purchased drugs were included
- Both animal and human drugs were included
- Only seven classes of drugs that were available in the veterinary pharmacy market were chosen for both human and veterinary drugs.

Exclusion Criteria

- Those pharmacy shops were closed even after three visits are excluded
- Drugs that were not available during the time of the visit or rarely purchased were excluded.
- Other than seven classes of drugs that were chosen from veterinary drugs are excluded from humans.

DISCUSSION

The present study analyzed the incongruity of pricing and affordability among the veterinary and human pharmaceutical drugs in India. The study assessed that the cost of veterinary drugs was higher than human drugs. The veterinary drugs which were sold in retail pharmacies were mainly without a prescription i.e., Over the Counter (OTC) drugs such as antibiotics, anti-fungal, anti-helminthic, anti-histamine, and anti-inflammatory. Most of these drugs were frequently purchased in retail pharmacies because of the high demand for such veterinary drugs by pet sitters for

medication and prevention of diseases like helminthic, tick-borne diseases, bacterial diseases are the major veterinary diseases based on fiscal significance in India.

An analysis of frequently used medicines in both veterinary and human scopes showed that the price of an individual medicine between and within the various manufacturing sectors were higher in veterinary drugs than human drugs. Especially, antibiotics used in veterinary pharmacies were higher compared to human drugs. In contrast, the cost of Doxycycline was lower in veterinary drugs when compared to the cost of human drugs.

Amidst anti-inflammatory drugs, the variation of a single unit Ibuprofen, meloxicam and paracetamol drugs showed higher cost in veterinary drugs and low cost in human drugs which ranged from Rs.45 in veterinary drugs and Rs.7.20 in human drugs. Wherein, cost of aspirin drugs was lower in veterinary drugs when compared to human drugs. Animals may have hypertensive and the veterinarian had been prescribing the generic form of an anti-hypertensive drug that manufactured for humans.

The various Anti-ticks drugs are used for animals and it was too expensive compared to the other veterinary drugs. Objectives corresponding to different businesses, pharmaceutical manufacture companies are imperative to make a yield on their speculations in drug products. If ground-breaking, innocuous and active medications are no longer available for animals and humans, then the goal of quality of life and disease-free life will be out of reach and exist as a mere fantasy.

Currently, the Food and Drug Administration (FDA) had approved nearly 300 drugs for use in acquaintance animals. Mostly, veterinary drugs had combinations similar to that of humans irrespective of age and gender as selected by the FDA. Further, the rules and regulations for drug approval and verification by the FDA are also analogous for both Human and veterinary drugs⁷.

The previous studies stated that the parasite drug was topically applied called revolution and it would be taken almost a decade in the innovation process. Several kinds of drugs were tested before the Revolution's composition called Selemectin was designated for progress. It indicates that several millions of dollars are commonly spent on the development of animal health drugs and hundreds of millions on human medication development⁸.

Animal Health Institute which represents manufacturers of drugs for farm and domesticated animals, states, "Even if everything goes well in the review and testing process, it often takes longer than five years to get a drug on the veterinarian's shelf. It is extremely costly and time-consuming to get the required numbers of actual cases of treated and untreated control animals for the necessary studies"⁹.

An investment of 20-100 million dollars was required for drugs intended to use in animals, while in humans, the cost of the drugs can reach about 500 million dollars or more before any actual sale of the drugs are licensed or approved. Due to overusage of human drugs in society, the cost of human drugs were minimalized. Whereas in veterinary field, if the cost of drugs is spiked, it may lead to ineffective prescription of medicine and eradication of animal diseases, consequently leading to high mortalities in animals and the loss of

profits in farm , which eventually causes collapse of the animal enterprise¹⁰.

If there is no profit made by the drug company, sufficient to cover all costs of veterinary drug development, manufacturing, and retailing, there will be no advanced medication for the animal problem. Many pet parents in India are investing more money to take care of their pets. When a pet becomes ill or injured, so some pet owners are forced to hold off on care and it is very difficult to make that decision¹¹.

In India, The Society for the Prevention of Cruelty to Animals (SPCA) is common for non-profit animal welfare organizations around the world. SPCA standardization operates autonomously of one another and campaign for animal welfare, aids in the prevention of cruelty to animal cases, redemption and verdict home environment for ill-treated and unsolicited animals that can be reinstated into innovative homes¹².

The majority of pet parents and farmers could not afford the drugs for the treatment of tick-borne diseases followed by antibiotics, anti-helminthic, antihistamine, and anti-fungal. Although pet drugs can be expensive, there can be certain steps taken to avoid those high prices. Some retail pharmacy stores and online pharmacies may offer better prices for human drugs than veterinary drug stores.

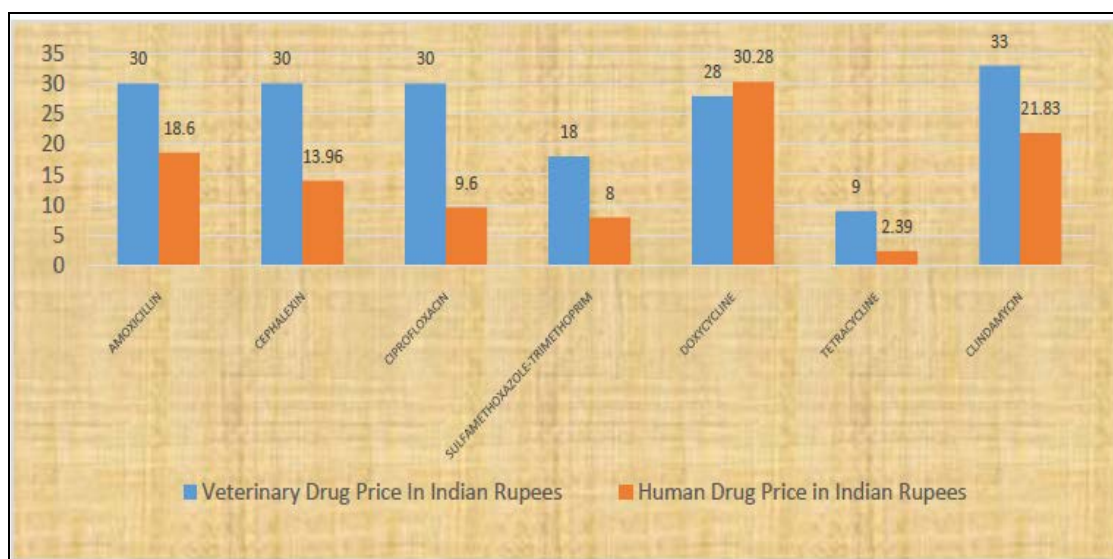


Figure1: Comparison of Price Chart-Variou Antibiotic Drugs Used in Humans and Animals (Single Unit in Indian Rupees)

Figure -1 depicts the comparison of various antibiotic drug prices used in Humans and Animals. The variation of a single unit Amoxicillin drug for veterinary costs Rs.30 whereas in Humans, the same drug costs to Rs.18.6. Likewise, Cephalexin, ciprofloxacin, Sulfamethoxazole, tetracycline, clindamycin drugs showed a higher cost range in veterinary than in human drugs which had a difference of Rs.9 on average. Doxycycline was the only veterinary drug cheaper than its similar human combination.

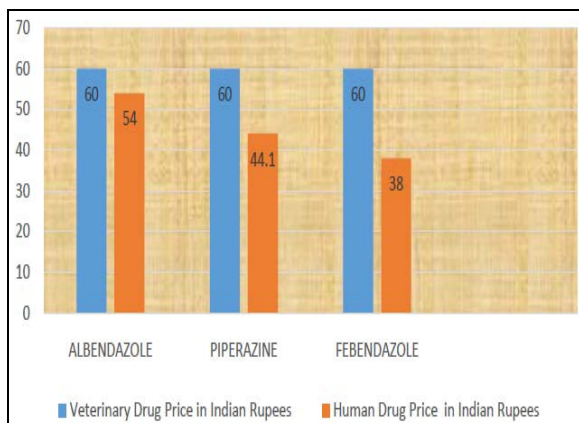


Figure 2: Comparison Price Chart-Antihelminthic Drugs Used in Animals and Humans (Single Unit in Indian Rupees)

Figure -2 depicts the comparison of various anti-helminthic drug prices for veterinary and human use. The variation of a single unit Albendazole drug in veterinary cost Rs.60 whereas in Humans, the same drug costs to Rs.54. Likewise, Piperazine and fenbendazole drugs showed a higher cost range in veterinary drugs than in human drugs which had a difference of Rs.14.6 in a human drug.

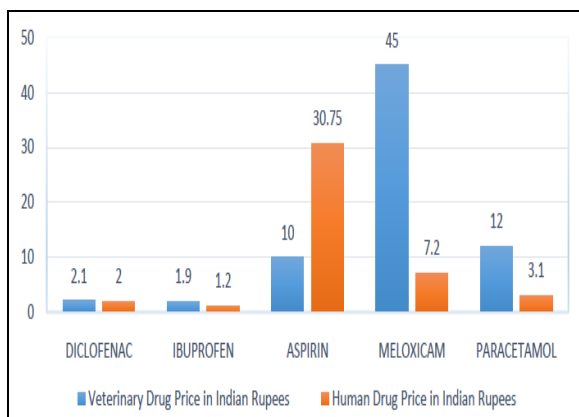


Figure 3: Comparison Price Chart-Anti-Inflammatory Drugs Used in Animals and Humans (Single Unit in Indian Rupees)

Figure -3 showed that the comparison of the anti-inflammatory drug price for veterinary and human use. The variation of a single unit Diclofenac drug in veterinary cost Rs.2 whereas in Humans, the costs Rs.1.9. Likewise, Ibuprofen, meloxicam, and paracetamol drugs showed higher cost in veterinary drugs and low cost in human drugs which ranged from Rs .45 in veterinary drugs and Rs.7.20 in human drugs. In contrast, aspirin resulted that the veterinary drugs are lower in cost (Rs.10) while compared with human drugs cost of Rs.30.75

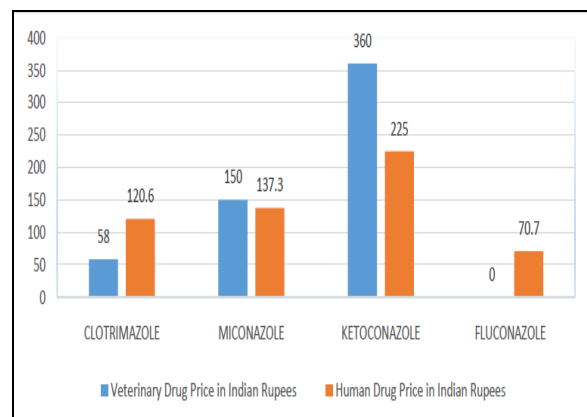


Figure 4: Comparison Price Chart-Anti-Fungal Drugs Used in Animals and Humans (Single Unit in Indian Rupees)

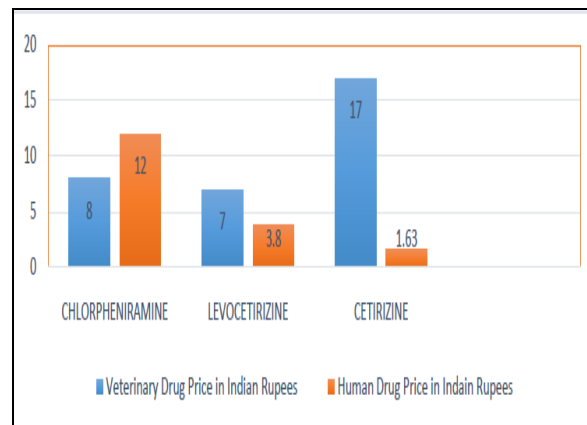


Figure 5: Comparison Price Chart-Anti-Histamine Drugs Used In Animals and Humans (Single Unit in Indian Rupees)

Figure-4 showed that the comparison of the anti-fungal drug price for veterinary and human use. The variation of a single unit miconazole drug in veterinary cost Rs.150 whereas in humans, the costs Rs.137.70. Likewise, ketoconazole drugs showed a higher cost in veterinary drugs and low cost in human drugs which ranged from Rs. 360 in veterinary drugs and Rs.225

in human drugs. In contrast, Clotrimazole resulted that veterinary drugs are lower in cost (Rs.58) while compared with human drugs cost of Rs.120.60.

Figure -5 depicts the comparison of anti-histamine drug prices for veterinary and human use. The variation of a single unit levocetirizine drug in veterinary cost Rs.7

whereas in humans, the cost of Rs.3.80. Likewise, cetirizine drugs showed a higher cost in veterinary drugs (Rs.17) and low cost in human drugs (Rs.1.63). Chlorpheniramine was the only veterinary drug cheaper than its similar human combination.

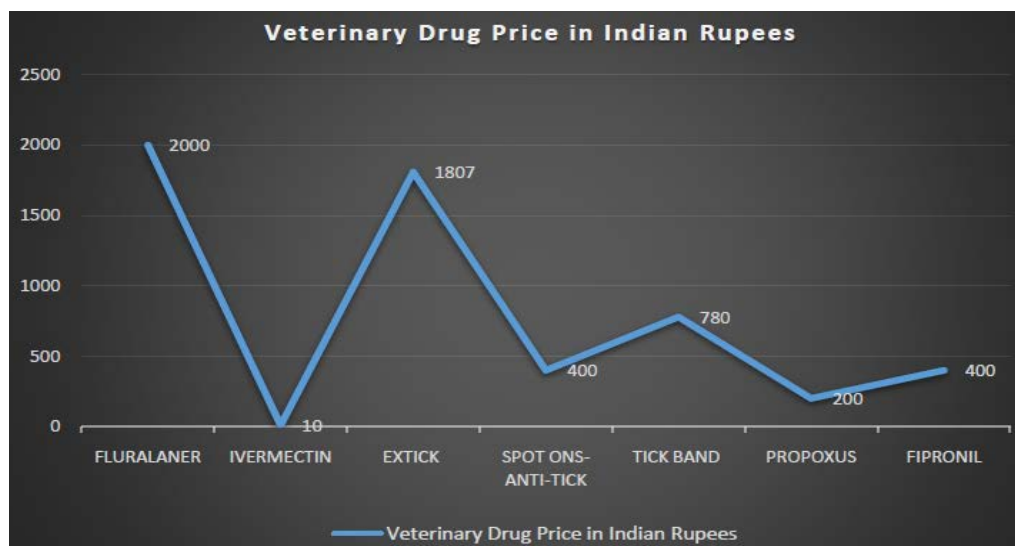


Figure 6: Price Chart-Variou s Anti-Tick Drugs Used In Animals (Single Unit In Indian Rupees)

Figure -6 showed that the anti-tick drug price for veterinary use. The variation of a single unit fluralaner drug in veterinary cost Rs.2000. Likewise, protector, tick band, propoxus, and fipronil showed higher cost in veterinary drugs whereas in Ivermectin showed lower cost.

Limitation

Only the price of the drugs was taken whereas comparison with individual ingredients of combination drugs along with dosage were not considered. Other drugs that were least commonly sold or those that were absent on the day of data collection were not considered.

CONCLUSION

The veterinary drugs are too expensive and we must take certain steps to avoid those high prices. Drug Regulation policies must be implemented for a veterinary drug similar to a human drug. A healthy lifestyle, which includes nutrition, toward helping with prevention. Another

way to save money to afford veterinary drugs is to get a credit line for pet health expenses. Despite rising veterinary drug prices, there are still ways to work around these challenges and keep the pets farm animals healthy and strong.

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