

CHOICE AND PATTERN OF THERAPEUTIC ANTIMICROBIALS IN COMPANION ANIMALS (DOGS, CATS AND BIRDS) IN ABA, ABIA STATE

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ABSTRACT: The choice and pattern of therapeutic antimicrobials were evaluated in companion animals. This was carried out by visiting the clinics and verifying the records of the pharmacy unit of the ten veterinary clinics and poultry services located within Aba, Abia State. Simple random sampling was used in selecting the clinics for this study. For the purpose of this study, a bird was used to represent a poultry farm. A total of 1961 companion animals made up of 1468 dogs, 172 cats and 321 birds (poultry farms). This study arises due to the need to avoid possibility of build-up of multi-drug resistance as a result of excessive drug usage and to know the choice antimicrobial currently in use. From the study, the choice antimicrobials use for dogs was Amoxicillin, for cat was Duxipra while Enrofloxacin was for birds, the percentage usage was represented as 45%, 50% and 40% in that order.

Keywords: Antimicrobial resistance, Dog, Cat, Birds

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INTRODUCTION

Antimicrobial resistance is of considerable and growing concern in veterinary medicine practice because of the difficulties in treating antimicrobial resistant infections. The misuse of antimicrobials has been associated with the selection and spread of antimicrobial resistant strains in animals (Barbosa and Levy, 2000; Berge et al., 2006; and Jensen et al., 2006). Resistance among bacterial populations can occur via several mechanisms, including introduction of resistant bacteria into a formerly susceptible population, genetic mutation that confers resistance, transfer of a genetic mutation from a resistant strain, selection of resistant strains through antibiotic pressure or dissemination of resistant bacteria caused by poor infection control (Gould, 1999).

Wild spread antibiotic use contributes to development of resistant populations by selecting for bacteria resistance. Bacteria resistance in turn can transfer resistant genes to other bacterial populations. In order to effectively prevent a control resistance, medical communities need to monitor and limit antibiotic use (Levy, 1997). Once a resistant strain has emerged, re-developing susceptibility to antimicrobial therapy is difficult and the process very lengthy (Singer, 2003).

Numerous strategies, recommendations and treatment guidelines on responsible use of antibiotics have been developed by a variety of national and international bodies (OIE, 2012). However, these policies laid out by these organizations are difficult to apply in a clinical setting (Weese, 2006). The objective of this study was to evaluate the choice antimicrobials commonly used by companion animal veterinarians (dog, cat and birds) in treatment across the various clinics located in Aba, Abia state Nigeria.

MATERIAL AND METHODS

The research work was carried out between November 15, 2012 and November 15, 2013. The research model cuts across visiting ten randomly selected private veterinary clinics and poultry services all located in Aba. The database of the pharmacy unit of the clinics was verified for all antibiotics prescriptions in dogs, cats and birds. The prescription was classified as therapeutic as in case of dog and cats while in birds therapeutic and prophylactic due to the endemic cases of diseases in poultry farming in this part of the country. The therapeutic prescription was sub-classified into confirmed, suspected or none evidence of infection. Important clinical parameters like age, sex, breed, were considered for dogs and cats. Also recognition was given to dose of antibiotics administered, suspected diseases conditions, temperature of the animal on the day antibiotic was administered and method of whelping. If a dog or cat had the same antibiotic prescription in multiples within a 21day period, subsequent prescription was eliminated on the perceived understanding that they likely represented treatment of the same set of clinical signs.



A random number was generated and used to select 10% of other prescription which were included in further analysis. For the birds, important clinical parameters: age, history of the poultry farms, presenting clinical signs (nervous, respiratory, digestive) and appetites were taken.

RESULTS AND DISCUSSION

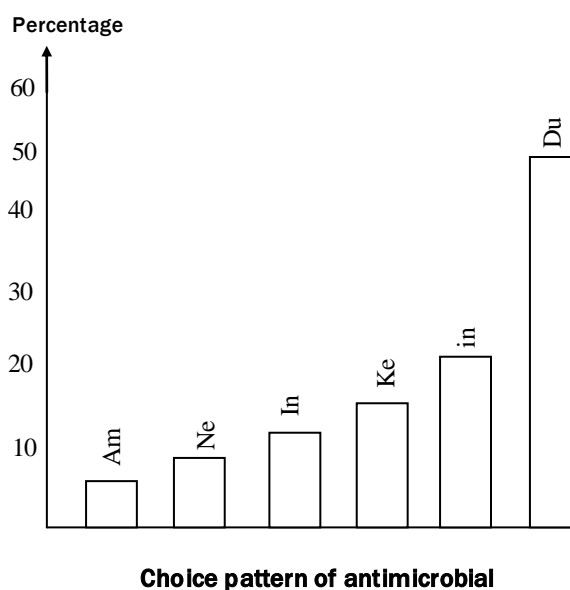
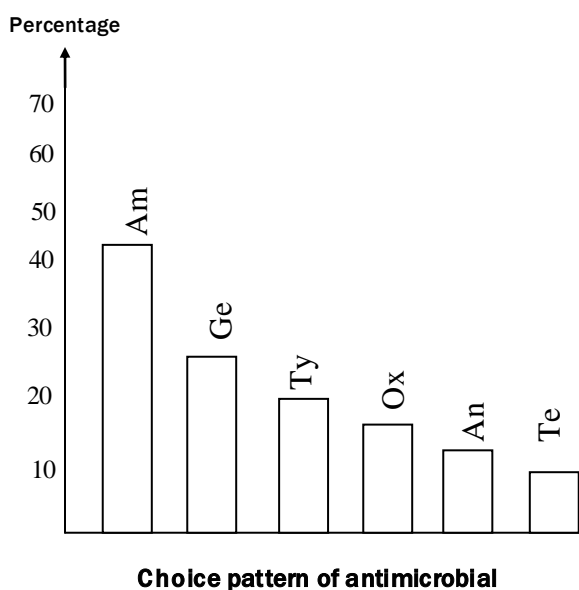
The total antimicrobial prescription from November 2012 to November 2013 was 1,961 made up of 1468 dogs, 172 cats and 321 birds. The prescriptions for the birds (poultry farm) were 321 made of individual farms. A farm was use to represent one prescription form. The total percentage prescription was made up of 1468 (74.0%) 172 (8.7%) and 321 (15.1%) for dogs, cats and birds.

The choice antimicrobials use for dogs in the various clinics visited, for treatment of various bacteria disease was in this pattern: Amoxicillin 45%, Gentamox 20%, Tylosin 15%, Oxytetracycline Hcl 10%, Ancomycin 7% and Terreamycin 3% in that order. Most of the prescriptions were done without carrying out culture and sensitivity test. It need be mentioned that the various clinics visited had no equipment for laboratory diagnosis.

For cats, the antimicrobials of choice commonly prescribed was Duxipra 50%, Invemox 25%, kepro-oxyjet 15%, intergen 5%, neomycin 3% and Ampicilin 2%. For birds, Enrofloxacin, Trisulmix, Gendox, Anicillin, Diaziprim and Oxytetra200. The percentages of prescription in that order are 40%, 20%, 15%, 10%, 8% and 2%.

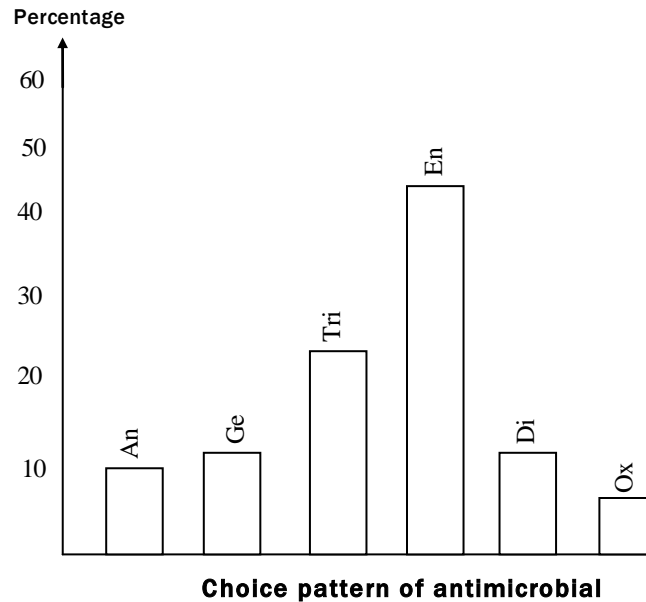
The result clearly shows that the percentage of dogs attended to was highest 74.0% compare to cat 8.7% and birds 15.1%. It also indicates that the number of dogs present in this location are more than cats from this study. Amoxycillin was the best choice antimicrobials in dogs, (45%). Duxipra (50%) for cats and Enrofloxacin (40%) for birds.

From the study, it was observed that the choice of prescription of certain antimicrobials especially for birds was based on the low cost of such drugs; this is in agreement with results of Gibbons et al. (2013) and Busani et al. (2004) studies. Also, the need to get instant or immediate action affected the decision of the physician in the prescription for dogs and cats. This was supported by Vanderweerd et al. (2012). There is a need to develop recommendations for standard and simple sampling methods for target pathogens or disease for veterinarians in practice. More efforts are also required to show how the minimum inhabiting concentrations (MIC) correlates to clinical efficacy of the various antimicrobials in the field hence antibiotic sensitivity test should be a must for veterinaries in other to avoid antimicrobial abuse and to encourage standardization, this view is supported by Doern and Brecher (2011) and Schultz et al. (2012).



Graph 1 - Distribution of antimicrobial in dogs between November 15, 2012 and November 15, 2013 (Keys: Am = Amoxycillin, Ge = Gentamox, Ty = Tylosin, Ox = Oxytetra Hcl, An = Ancomycin, Te = Terreamycin)

Graph 2 - Distribution of antimicrobial prescription in cats between November 2012 and November 2013 (Keys: Amp= Ampicillin, Ne= Neomycin, in= intergen, Ke= Keproject, inv= Invemox, Du = Duxipra)



Graph 3 - Distribution of antibiotic prescription in birds between November 2012 and November 2013.
(Keys: An = Anicillin, Ge = Gendox, Tri = Trisulmix, En = Enrofloxacin Di = Diaziprim, Ox = Oxytetra 200)

CONCLUSION

Of the total companion animals, 1961 evaluated, the prescription percentage of antimicrobials were 74.0%, 8.7% and 15.1% for dogs, cat and bird, respectively. Amoxicillin, Duxipra and Enrofloxacin were the best choice antimicrobials commonly used by veterinarians in that order for the listed companion animals. It is concluded that, the need to reduce the use of some of these antimicrobials by veterinarians is necessary to avoid build up of antimicrobial resistant over a period of time.

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