



Commentary

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Advances in Component of Medical Sciences Combining Pharmacovigilance: Ecology and Environmental Microbiology

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Received: 23-May-2022, Manuscript No. JOCPR-22-67965; Editor assigned: 27-May-2022, PreQC No. JOCPR-22-67965 (PQ); Reviewed: 07-Jun-2022, QC No. JOCPR-22-67965; Revised: 17-Jun-2022, Manuscript No. JOCPR-22-6796 (R); Published: 24-Jun-2022, DOI:10.37532/0975-7384-22.14.026.

ABOUT THE STUDY

Microbiologists are worried about the rise in antibiotic resistance due to irrational use, while environmental experts are very concerned about the effects of antibiotics on the environment. The usage of antibiotics (irrational or prescribed) and their effects on the environment at therapeutic doses not have, however, been given much attention. Even the World Health Organization (WHO) described "Pharmacovigilance" activities as the observation, identification, evaluation, comprehension, and prevention of any adverse drug reactions in both animals and humans while the medicine is being used therapeutically. However, identifying the negative effects (ADEs) of antimicrobial drugs on the environment is not given much attention (given at therapeutic doses). This problem has been brought to light in the current study, and a new field called "Pharmaco-EcoMicrobiology" has been suggested to cope with and keep track of such negative impacts. The interaction between pharmaceutical antimicrobial medicines and animate microbial ecology has been referred to as "Pharmaco-EcoMicrobiology." The study of Adverse Drug Events (ADEs) brought on by antimicrobial drugs excreted in the environment falls under the purview of the new scientific field known as "Pharmaco-EcoMicrobiology," which was created by combining three significant scientific branches (pharmacology, ecology, and microbiology).

The World Health Organization (WHO) "Pharmacovigilance" activities are carried out to keep a close eye on the detection, assessment, comprehension, and prevention of any systemic adverse reactions to medications at therapeutic concentration on both animals and people. The effects of drugs on the environment and surroundings, however, have become a major source of worry for environmental scientists recently. The finding of drugs in sewage at the Big Blue River sewage treatment plant, the death of a vulture after consuming animal carcasses treated with diclofenac sodium and the feminization of male fish by ethinyl estradiol is a few noteworthy hazardous impacts that have been reported. There are also reports of environmental fauna being disturbed as a result of drugs being

eliminated from the environment. However, finding the negative effects of antimicrobial medications provided in therapeutic doses on the environment should raise concerns. It is therefore intriguing to observe that despite selective pressure and rising antibiotic resistance in microorganisms, no one has addressed the vigilance of Adverse Drug Events (ADEs) caused by antimicrobials given to humans and other animals at therapeutic levels. One may contend that an element of environmental microbiology is the impact of antimicrobial agents and their impact on microorganisms that harm people or animals directly or indirectly. It is important to note that "Environmental Microbiology" does not include the study of ADEs, but rather the study of microorganisms that live in a range of settings (such as air, soil, water, etc.) and their harmful relationships to other organisms, including humans.

Additionally, it contains elements of both "ecology" and "microbiology" when it disrupts the environment, particularly in respect to microorganisms. Therefore, we suggest the name "Pharmaco-Eco-Microbiology" for this more recent branch of science, which should regulate the issues raised above, including the adverse effects on microorganisms (ADEs) caused by antimicrobial drugs that are excreted in the environment at therapeutic doses. The definitions of "Environmental Microbiology" and "Eco-pharmacology" do not explicitly describe these ideas. Additionally, now in use that considers medical, veterinary, and environmental elements of highly widespread usage, abuse, and overuse of antimicrobial drugs. Therefore, we propose that the negative consequences caused by the release of antimicrobial drugs into the environment *via* the fore-mentioned channels may be a component.