

Antibiotic Resistance: Lets Resist It Together!

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Infections have been around for longer than the existence of human race, the only thing that has changed is that some of the infections which were considered life threatening at some point are now easily treatable. This feat which was once impossible became possible with the discovery of antibiotics. Antibiotics are used to treat as well as prevent bacterial infections. Most of us feel we should be perfect in whatever we do and sometimes we over-whelm ourselves to achieve this perfection but the miracle drug penicillin was discovered by accident when Alexander Fleming by chance contaminated his culture plates! This imperfect step proved to be a boon to human race a great mile stone in field of medicine. CDC has stated that antibiotics still remain the greatest means of controlling contagious maladies around the globe;¹ but with indiscriminate use this boon may at some point in time become a bane.

Initial introduction and usage of antibiotics had helped drastically reduce the morbidity and mortality in humans as well as animals by successful treatment of various infectious diseases. But the unchecked use of antibiotics has led to a development of another threat that we face, i.e. antibiotic resistance (AR). This AR may revert or even worsen the situation and again cause a rise in morbidity and mortality due to various infections. Like every living being even micro-organisms evolve and show adaptation to face harsh environmental factors in order to survive, hence new strains of bacteria are showing multi-drug resistance and are causing infections which are not just difficult but in some cases even impossible to treat. Some of these microbes are changing themselves that too very fast in order to survive or resist antibiotics, this is what is referred to as AR i.e. bacteria becoming resistant to antibiotic and not humans or animals getting any sort of resistance to these drugs. This is a major threat for global health.² Waglechner and Wright³ put forth in their article that no class of antibiotics is exception to development of resistance, this happens overtime as bacteria activate/ use various mechanisms to develop resistance/ try and cope up with the threats to their lives, hence leading to the survival of the fittest! These authors have stated that antibiotics are natural products and so is their resistance. But this quest for survival has given rise to multidrug-resistant

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bacteria called the super bugs in layman terms. One prominent super bug has been methicillin resistant staphylococcus aureus. MRSA de novo mutations or horizontally transferred resistance determinants which help it to resist the antibiotics but empirical therapy techniques and various other techniques like antibodies, vaccines, antivirulence therapy, bacteriophages etc. are being explored to overcome such superbugs.⁴

The mechanism of development of AR has been researched and discussed actively and in depth^{5,6,7} and it is not in scope of this editorial. This editorial basically is to highlight the importance of antibiotics and how AR is a risk we need to abate. Various measures are being taken such as antibiotics are prescription drugs and not available over the counter, but this is not universal!, also educating people about this problem is important so that patients don't demand antibiotics when the health professionals tell that antibiotics are not required for particular treatment. All related to field of health directly or indirectly need to make people aware about the value of antibiotics and how a course of recommended antibiotics should always be completed and not left midway, how no one should share or reuse left over antibiotics without a doctor's consult, what are the threats we face due to the wrong use or misuse of these highly useful drugs. As recommended by WHO, steps need to be taken at all levels i.e. individual, health professional, health care industry as well as agricultural level to slow down and eliminate this problem of AR.

Basically we all need to work together so this boon (antibiotics) never become a bane!

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