CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.1463056

Available online at: http://www.iajps.com Research Article

THE RATIONAL USE OF ANTIBIOTICS MEDICINE

[1]Dr. Muhammad Shakeel, [2]Dr. Muhammad Arshad, [3]Dr. Muhammad Umair Aslam

[1]BHU Kanvewala Teh Lalian, Distt Chiniot, Pakistan

[2]BHU 335/wb Teh Mailsi, Distt Vehari, Pakistan

[3]BHU 191/jb The Bhowana, Distt Chiniot, Pakistan

Abstract:

Antibiotics abuse along with the growth of microbial resistance in them is considered a global phenomenon, as the objective of this study is to focus the rational practice of antibiotics and restriction of their microbial resistance. Exclusive review of the latest literature was accompanied through electronic database Medline and with the connection of the "Greek Association of Academic Libraries (HEAL-Link), utilizing the "medicine", "antibiotics" and "rational utilization" words as keys.

Accordingly, antibiotic's rational use is, however, it must not be unintentional while it requires contemplation and deliberation and should also be based on rules. The precise diagnosis, the condition of the patient, the injection location, the pharmacodynamics and pharmacokinetics of antimicrobials, the rigorousness of the microbial cause compassion to antibiotics and the cost and other side effects and are the major objects which must be recognized and supported in every usage decision. It is also observed that medical professionals should recommend antibiotics specifically when it is utmost necessary and it must be based on accessibility guidelines.

Keywords: *Medicine, Antibiotics, Pharmacodynamics, Rationale Use*

Corresponding author:

Dr.Muhammad Shakeel,

BHU Kanvewala Teh Lalian,

Distt Chiniot,

Pakistan

QR code

Please cite this article in press Muhammad Shakeel et al., ***The Rational Use of Antibiotics Medicine.,*** *Indo Am. J. P. Sci, 2018; 05(10).*

1.0 INTRODUCTION:

The World Health Organization has serious concerns, as well as individual countries, about the overuse of antibiotics along with the growth of the resistance in microbes. It is now officially admitted that, beyond doubt, limiting the maltreatment of antibiotic declines resistance. Though their all decisions about the way of reduction of resistance is its appropriate use and declining abuse. It is also considered to accept that while declining the misuse of antibiotic there is an utmost need for training for both patients and doctors (Baiden et al., 2010).

Studies also exposed that independent intervention either by physicians themselves or patients themselves have considerable outputs. So, it is obvious that the single way for an appropriate antibiotic use is through some intervention programs by both patients and doctors. Accordingly, it is concluded that a proper educational intervention for patients and doctors by highly associated professional with proper approaches, can improve the issue of antibiotic abuse adequately and to remove the possibility of antimicrobial resistance regularly that insidiously outputs in high social and medical problem (Barie, 2014).

Yet, the time has transformed and now we require reeducating physician and patients about an appropriate use of antibiotics to maintain the health of their own and their children also. Accordingly, the basic purpose of this study is to focus the sane use of antibiotics to maintain optimal result of the infection with mitigating the toxicity and also restraint of microbial resistance (Khan, 2017).

2.0 MATERIAL AND METHODS:

2.1 Method

Exclusive recent literature's review was directed through Medline Electronic Database and via (HEAL-Link) the "Greek Association of Academic Libraries" using special words key such as impact, misuse, antibiotics, medicine.

2.2 Antibiotics

Basically, antibiotics are medical substances which destroy the virus without damaging the host, human. Etymologically, this specific word based on two words; "anti" used for "against" and "biotic" used for life. Similarly, researchers observed that antibiotics are either a natural material which is produced naturally by microorganisms or is a synthetic material, mostly prepared in medical laboratories. To be reflected an effective clinically proven antibiotic and however effective in medicine, the obliteration or development inhibition of microorganism is attained in the particular absorptions in of antibiotic in the human body. Till date, almost 4000 antibiotics have been quarantined from microbes' cultures and 30,000 have been organized semisynthetic (Lambrini, 2017).

In daily routine, therefore, only 100 are in utilization, secondly, apart from Medicine, antibiotics are utilized in Food Chemistry, Veterinary,and Agriculture. Antibiotics may be useful as:

- Broad spectrum and can kill hundreds of kinds of bacteria (such as penicillin). These wide spectrum antibiotics always considered active against different kinds of microbes like rickettsia, bacteria, mycoplasmas, spirochetes,and protozoa.
- Narrow spectrum, which may destroy different kinds of bacteria such as isoniazid and may be utilized where possible to decline the colonization risk and superinfection with bacteria resistance (Khan, 2017).

Generally, antibiotics are further sorted as germs' kill bactericides or bacteriostatic, averting the development of bacteria. These considerations are based on the antibiotics' laboratory behavior, but in reality, both of these categories are fully capable to treat a bacterial infection. There are many factors which must be studied for every host while directing the formulations of antibiotic (Meleney, 2017).

Genetic factors like a lack of G6PD ("G6PD deficiency is basically a genetic disorder and mostly happened in male, as when any person's body does not have sufficient of Glucose-6-phosphate dehydrogenase G6PD. Accordingly, G6PD supports red blood cells and protects red blood cells from some blood substances which may harm them. Generally lack of G6PD further disturbs: a) hepatic and renal impairment factors which may determine the antibiotic types; b) these bacterial drugs are important for the infections of life threating like "sepsis"; c) diseases like lymphomas, vasculitides, tumors, and other systematic diseases may arise; d) those infections which are the cause of basic administration of antibiotic must be instant due to the occurrence of life-threatening infections. Some of the examples are bacterial endocarditis, meningitis, leukopenia,and severe necrotizing cellulitis. While administrating the antibiotics, "anaeroveies aerobic cultures" must be engaged which should be observed due to the initial treatment, fiasco will, however, alter the initial therapeutic regimen (O'Brien, 2015).

2.3Antimicrobial Resistance

This situation occurs when there is micro-organism resistance to an antibiotic spectrum. Antimicrobial resistance situation is according to alteration in the genetic microorganism material, mutations in one gene with some new gene, specifically by organism "contamination" with transposable components, inegronia, plasmids, and some other phases(Xiao et al., 2013).

The resistance of antimicrobial is a core public health issue for multiple reasons such as:

a) Reduces treatment choice and declining particular antibiotics which are suitable for that specific infection and in this condition physician is liable to select an antibiotic which may be more toxic or expensive and probably moderate pharmacokinetics for some specific infection(Xiao et al., 2013).

b) It elevates mortality, different nosocomial infections are previously instigated by the resistance of bacteria to all antibiotics and many studies believe that we must return back to a pre-antibiotic era(O'Brien, 2015).

c) Antibiotic elevates human pain, as infection become stubborn, and it is obligatory that patient stay in the hospital longer than before due to intravenous therapy necessity. There are several legal issues as, according to a database record, in the United States of America, in hospitals, the occurrence of resistance is considered a sign of low-quality care services and most of the patient's recourse to a lawsuit against their damages (O'Brien, 2015).

3.0 DISCUSSION:

3.1 The Use of Antibiotics

For the cause of rational use of antibiotics, recently (according to the records of Medline Database) an "Awareness Day for Rational Use of Antibiotics" has been arranged to reduce the over-consumption of antimicrobial substances. The general public was the recipients of those messages and the purpose was raising the awareness to limits the antimicrobials consumption at care level. It entails reflection and thought it should be founded on the rule. The condition of patients and correct diagnosis, the identification location and the sternness of antibiotics sensitivities of microbial usage with multiple other side effects are the core elements which should be supported in doctor's decision for antibiotic use (Barie, 2014).

3.2The Strategy of Administration of Rational Antibiotic Usage

All those patients who have severe bacterial infections, their white cells numbers are generally elevated and even excel granulocytes. Specifically, based on the clinical image, several laboratory tests may recognize the infections' anatomical location. Just,for example, the burning urination, fever combination and elevated numbers of pyosfairion urinalysis signify infection in patients(LABETOULLE, 2012).

Accordingly, those patients who grow an infection in the time period of their hospitalization empiric antimicrobial therapy direction must take account flora sensitivity, moreover, it is not only for visitors of the hospital but for ICU, surgery and other clinical pathology, which basically developed the infection. Micro-organisms remarkable capability is to adopt any that environment in which every latest pathogenic is resistant to the antibiotic. All those patients who have meningitis must not treat with antibiotics which may not pass the barrier of blood-brain, like first generation gentamicin, cephalosporin,and clindamycin. Specifically, for this reason, the medication should be established with bactericidal drugs at greater doses and for a protracted period of time. Similarly, for the foreign body infections, like pacemakers, prosthetic valves, prosthetic joints and it may possible to eradicate excluding the foreign body eliminating (Baiden et al., 2010).

In severe infection conditions, such as patients with neutropenia, have an elevated mortality from sepsis and an appropriate direct IV therapy with bactericidal antibiotics of the broad spectrum at high doses required. It is well-known fact that older people excrete antibiotics at lengthy pace. So, in older patient's case, there must be longer pauses required between antibiotics doses. It is also considered that at older age drugs, especially with greater toxicity, like ototoxicity and nephrotoxicity should be avoided (Baiden et al., 2010).

Doctors also need to follow the below-mentioned rules for the rational administration of antibiotics.

a) A large number of antibiotics collectively may perform synergistically as compared to the competitively. Similarly, many infections may be administrated with an antibiotic but there are many cases where this is obligatory to amalgamate the antibiotic administration. For instance, infections in lower limbs and intraventricular brain abscesses specifically in diabetic patients (Barie, 2014).

b) Longer use of antibiotics provides outputs in adverse side effects. Severe reactions to antibiotics are general and are further divided into idiosyncratic, dose-dependent and allergic. Specific examples of some serious allergic retorts are immediate reaction of

hypersensitivity to penicillin (like circulatory collapse and laryngeal edema). In a case when a patient taking multiple antibiotics may produce an allergic reaction, in that case, all antibiotics are suspicious and may not reuse (Barie, 2014).

c) Several antibiotics use elevates the infection risk with resistant micro-organisms. Accordingly, when several antibiotics are administered to a specific patient, the microorganisms spectrum killed may increase. The flora destruction of gastrointestinal tract and oropharynx are harmful to people. Those microorganisms which found normally in these regions are opposing to generate more resistant of micro-organism. The removal of the general flora of the unselective antibiotic use has resulted in the growth of multi-resistant pathogenic microorganisms (Lambrini, 2017).

d) It is important to make people mind while taking antibiotics, specifically on their personal initiative and highlights them about the antibiotic's harmful effects. The antibiotic prescription is not necessary for each condition of the patient, so in case of medical personnel does not prescribe it, it does not mean that you are not sick. Follow your physician instruction properly while selecting the antibiotics. Follow the dosage instructions given by physician accordingly (Lambrini, 2017).

4.0CONCLUSION:

Antibiotics are specifically a crucial approach to medical usage in general medical procedures, like chemotherapy and transplantation. Therefore, over the years, the chances of bacteria have developed resistance to antibiotics. Resistant bacteria may be communicated from, mostly, animals to humans, by either food chain or by direct physical contact. Several bacterial infections are considering resistant to medication most generally arranged antibiotics. The pathogenic microorganism's resistance to antibiotics is not an issue for the patient and also it is a severe issue for the environment according to the members of household which are populated by identical pathogen and are mostly like to become ill due to the specific reason. Physicians and another medical professional must prescribe antibiotics only when necessary and based on abovementioned instructions.

REFERENCES:

1. Baiden, F., Webster, J., Owusu-Agyei, S. and Chandramohan, D. (2010). Would the rational use of antibiotics be compromised in the era of test-based management of malaria?. *Tropical Medicine & International Health*, 16(2), pp.142-144.
2. Barie, P. (2014). Rational and Appropriate Use of Prophylactic Antibiotics. *Archives of Surgery*, 132(3), p.320.
3. Khan, M. (2017).Rational Use of Antibiotics in Surgical Practice. *Bangladesh Journal of Medical Science*, 16(4), p.483.
4. LABETOULLE, M. (2012). Is there a rationale for the use of topical antibiotics before and after intravitrealinjections. *ActaOphthalmologica*, 90, pp.0-0.
5. Lambrini, K. (2017). The Rational Use of Antibiotics Medicine. *Journal of Healthcare Communications*, 02(03).
6. Meleney, F. (2017).RATIONAL USE OF ANTIBIOTICS IN CONTROL OF SURGICAL INFECTIONS. *JAMA: The Journal of the American Medical Association*, 153(14), p.1253.
7. O'Brien, P. (2015). Rational and Appropriate Use of Prophylactic Antibiotics-Reply. *Archives of Surgery*, 132(3), p.321.
8. Xiao, Y., Zhang, J., Zheng, B., Zhao, L., Li, S. and Li, L. (2013).Promotion of the Rational Use of Antibiotics. *PLoS Medicine*, 10(11), p.e1001556.