

## REVIEW ARTICLE

### Resistance to antibiotics: Homeopathic perception

Dr. Bhasker Sharma

M.D (Homoeopathy), Ph.D(Homoeopathy)

Sharma Homoeopathy Chikitsalya and Research Center, Itwa Bazar, Dist-Siddharthnagar, Uttar Pradesh, PIN -272192

#### ABSTRACT:

Antibiotics are the drugs that are used to fight against microbes. Antibiotics have not only been used for therapeutic purposes but practiced prophylactically across other industries such as agriculture and animal husbandry. With time microbes have become resistant to common antibiotics. Antibiotic-resistant infections correlate with the level of antibiotic consumption. Not using antibiotics judiciously is mostly responsible for making the microbes resistant. The present review was done to explore about the resistance of antibiotics in homeopathy.

**Key words:** antibiotics, antibiotic resistance, microbes.

Received: 22 June, 2019

Revised: 26 June, 2019

Accepted: 27 June, 2019

**Corresponding author:** Dr. Bhasker Sharma, M.D (Homoeopathy), Ph.D (Homoeopathy), Sharma Homoeopathy Chikitsalya and Research Center, Itwa Bazar, Dist-Siddharthnagar, Uttar Pradesh, PIN -272192

**This article may be cited as:** Sharma B. Resistance to antibiotics: Homeopathic perception. Int J Res Health Allied Sci 2019; 5(4):4-6.

#### Introduction:

Antibiotics, either are cytotoxic or cytostatic to the micro-organisms, allowing the body's natural defenses, such as the immune system, to eliminate them. They often act by inhibiting the synthesis of a bacterial cell, synthesis of proteins, deoxyribonucleic acid (DNA), ribonucleic acid (RNA), by a membrane disorganizing agent, or other specific actions.<sup>1</sup> Antibiotics may also enter the cell wall of the bacteria by binding to them, using the energy-dependent transport mechanisms in ribosomal sites, which subsequently leads to the inhibition of the protein synthesis.<sup>2</sup> Antibiotic resistance is the ability of bacteria or other microbes to resist the effects of an antibiotic which occurs when bacteria change in some way that reduces or eliminates the effectiveness of drugs, chemicals, or other agents designed to cure or prevent infections. The bacteria survive and continue to multiply causing more harm.<sup>3</sup> Bacteria, not humans become antibiotic resistant. Overuse and misuse of antibiotics increase the development of resistant bacteria. Almost every type of bacteria has become stronger and less responsive to antibiotic treatment when it is really needed.<sup>3</sup>

#### Origin of antibiotic resistance

Antibiotic resistance was reported to occur when a drug loses its ability to inhibit bacterial growth effectively.

Bacteria become 'resistant' and continue to multiply in the presence of therapeutic levels of the antibiotics.<sup>4</sup> Antibiotics are usually effective against them, but when the microbes become less sensitive or resistant, it requires a higher than the normal concentration of the same drug to have an effect. The emergence of antimicrobial resistance was observed shortly after the introduction of new antimicrobial compounds.<sup>5</sup> Non-judicial use of antibiotic is responsible for making microbes resistant. Since the introduction of sulfonamides in 1937, the development of specific mechanisms of resistance had provoked their therapeutic use. However, sulfonamide resistance was reported in the 1930s, which reveals the same mechanism of resistance that still operates even now, more than 80 years later.<sup>6</sup> Within six years of the production of the aminoglycosides, aminoglycoside-resistant strains of *Staphylococcus aureus* was developed.<sup>7</sup> Introduced in 1961, Methicillin was the first of the semisynthetic penicillinase-resistant penicillin to target strains of penicillinase-producing *Staphylococcus aureus*. However, resistance to methicillin was reported soon after its initiation.<sup>8</sup> Further, although fluoroquinolones were introduced for the treatment of Gram-negative bacterial diseases in the 1980s, fluoroquinolones resistance later revealed that these drugs were also used to treat Gram-positive infections.<sup>9</sup> Quinolone resistance emerged as a stepwise

attainment of chromosomal mutations, particularly among the methicillin-resistant strains. Most recently, the clinical isolates of Vancomycin-resistant *Staphylococcus aureus* (VRSA) were found in 2002, after 44 years of Vancomycin introduction to the market.<sup>10</sup>

### Development of antibiotic resistance

Antibiotics fight to eliminate bacteria. Hence, bacteria tend to have a natural process that encourages resistance. The resistance process occurs via gene level mutations.<sup>11</sup> Antibiotics induce selective pressure and the genes act in association with selective pressure.<sup>12</sup> Bacteria possess the quality to directly transfer genetic material between each other by transferring plasmids, which signifies that natural selection is not the only mechanism by which resistance evolves.<sup>13</sup> Antibiotics can generally eliminate the majority of bacteria in a colony. However, there may exist a different colony of bacteria that are genetically mutated which can lead to resistance.<sup>14</sup> The level of antibiotic-resistant infections was found to be strongly correlated with the degree of antibiotic consumption.<sup>15</sup>

### Homeopathy Used Instead Of Antibiotics

Antibiotics are prescribed more frequently for many self-limiting illnesses and viral infections such as cold, flu, or fever where they do no good. For many such illnesses taking Homeopathy can be useful as it acts by modulating the host immunity. Treatment is effective, and further recurrence of disease is reduced.<sup>16</sup>

### Homeopathy And Otitis Media

The American Academy of Publications published a guideline on the diagnosis and management of otitis media in children stating that homeopathic remedies as possible treatments for reducing otalgia, with the admonition that there are limited data on their usefulness in children with otitis media.<sup>17,18</sup> Based on this, a study was carried which validated this recommendation and concluded that homeopathic ear drops may be effective in reducing the use of antibiotics in children with acute otitis media managed with a delayed antibiotic approach.<sup>19</sup>

### Homeopathy And Pulmonary TB

Study on homeopathic treatment in addition to standard care in multi-drug-resistant (MDR) pulmonary TB suggests add-on Homeopathy in addition to standard therapy appears to improve outcome in MDR-TB.<sup>20</sup>

### Homeopathy and upper respiratory tract infections

Clinical research suggests that Homeopathy is effective in the treatment of upper respiratory tract infections in children, a frequent cause of inappropriate antibiotic prescribing.<sup>21</sup>

### Homeopathy and diarrhea

Homeopathy can be used as a replacement to antibiotics in the case of *E. coli* diarrhea in neonatal piglets, it was shown that Piglets of the homeopathic treated group had significantly less *E. coli* diarrhea than piglets in the placebo group ( $P < 0.0001$ ).<sup>22</sup>

### Homoeopathy and Diabetes

*Gymnema sylvestre*, a traditional medicinal plant has reported use as a remedy for diabetes mellitus. In this issue, we present a study on antioxidative and antiglycation potential of *G. sylvestre* in mother tincture, 6C and 30C potencies. The results suggested that homoeopathic preparations of *G. sylvestre* had potent antioxidant and antiglycation activity.<sup>23</sup>

### Conclusion

Antibiotic use in humans, animals, and agriculture is increasing so as antibiotic-resistance. The overuse and misuse of antibiotics should be stopped. The public health workers should establish a coordinated system at national and international levels for ongoing analysis and a mandatory reporting system for antibiotic resistance.

### References

1. Antibacterial resistance worldwide: causes, challenges and responses. Levy SB, Marshall B. Nat Med. 2004;10:122–129.
2. Antimicrobial resistance in staphylococci: Epidemiology, molecular mechanisms, and clinical relevance. Maranan MC, Moreira B, Boyle-Vavra S, et al. Infect Dis Clin North Am. 1997;11:813–849.
3. Missouri Department of Health & Senior Services [Internet]. FAQ's Available from: <http://www.health.mo.gov/safety/antibioticresistance/faq.php>.
4. Overview of Bacteria. [Jun;2017];<http://www.merckmanuals.com/home/infections/bacterial-infections/overview-of-bacteria> Merck. 2017
5. Levy SB, Chadwick DJ, Goode J. Vol. 1. 2007: Chichester, UK; 2007. Antibiotic Resistance: An Ecological Imbalance, in Ciba Foundation Symposium 207 - Antibiotic Resistance: Origins, Evolution, Selection and Spread; pp. 1–14.
6. The influence of pellet shape and surface properties on the drug release from uncoated and coated pellets. Chopra R, Alderborn G, Podczek F, et al. Int J Pharm. 2002;239:171–178.
7. Discovery and development of new antimicrobial agents. Gootz TD. Clin Microbiol Rev. 1990;3:13–31.
8. "Celbenin"-resistant staphylococci. Jevons MP. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1952888/?page=1> Br Med J. 1961;1:124–125. [Google Scholar]
9. Antimicrobial resistance: the example of *Staphylococcus aureus*. Lowy FD. J Clin Invest. 2003;111:1265–1273. [PMC free article] [PubMed] [Google Scholar]
10. The emergence of vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus*. Appelbaum P. Clin Microbiol Infect. 2006;12:16–23.
11. Economics of antibiotic resistance: A theory of optimal use. Laxminarayan R, Brown GM. J Environ Econ Manage. 2001;42:183–206.
12. Levy SB. N Engl J Med. Vol. 328. Plenum Press: York; 1993. The antimicrobial paradox. How miracle drugs are destroying the miracle; p. 1792.
13. Antimicrobial resistance: the example of *Staphylococcus aureus*. Lowy FD. J Clin Invest. 2003;111:1265–1273.
14. Resistance to antibiotics: Are we in the post-antibiotic era? Alanis AJ. Arch Med Res. 2005;36:697–705. [PubMed] [Google Scholar]

15. Outpatient antibiotic use in Europe and association with resistance: A cross-national database study. Goossens H, Ferech M, Vander Stichele R, et al. [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(05\)17907-0/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(05)17907-0/fulltext) The Lancet. 2005;365:579–587.
16. Available from: <http://www.abcnews.go.com/blogs/health/2012/03/16/antibiotic-resistance-could-bring-end-of-modern-medicine/>.
17. American Academy of Pediatrics Subcommittee on Management of Acute Otitis Media. Diagnosis and management of acute otitis media. *Pediatrics* 2004;113:1451-65.
18. Lieberthal AS, Carroll AE, Chonmaitree T, Ganiats TG, Hoberman A, Jackson MA, et al. The diagnosis and management of acute otitis media. *Pediatrics* 2013;131:e964-99.
19. Taylor JA, Jacobs J. Homeopathic ear drops as an adjunct to standard therapy in children with acute otitis media. *Homeopathy*. Homeopathy, Volume 100, Issue 3, 109-115. Available from: <http://gph.sagepub.com/content/1/2333794X14559395.full>.
20. Chand KS, Manchanda RK, Mittal R, Batra S, Banavaliker JN, De I. Homeopathic treatment in addition to standard care in multi drug resistant pulmonary tuberculosis: A randomized, double blind, placebo controlled clinical trial. *Homoeopathy* 2014;103:97-107.
21. Available from: [http://www.Homoeopathyjournal.net/article/S1475-4916\(03\)00016-X/fulltext](http://www.Homoeopathyjournal.net/article/S1475-4916(03)00016-X/fulltext).
22. Camerlink I, Ellinger L, Bakker EJ, Lantinga EA. Homoeopathy as replacement to antibiotics in the case of *Escherichia coli* diarrhoea in neonatal piglets. *Homoeopathy* 2010;99:57-62.
23. Kishore L, Singh R. Protective effect of *Gymnema sylvestre* L. against AGEs, sorbitol accumulation and aldose reductase activity in Homeopathic Formulation. *Indian J Res Homoeopathy* 2015;9:240-7.