Things we must know about antibiotic resistance & its prevention

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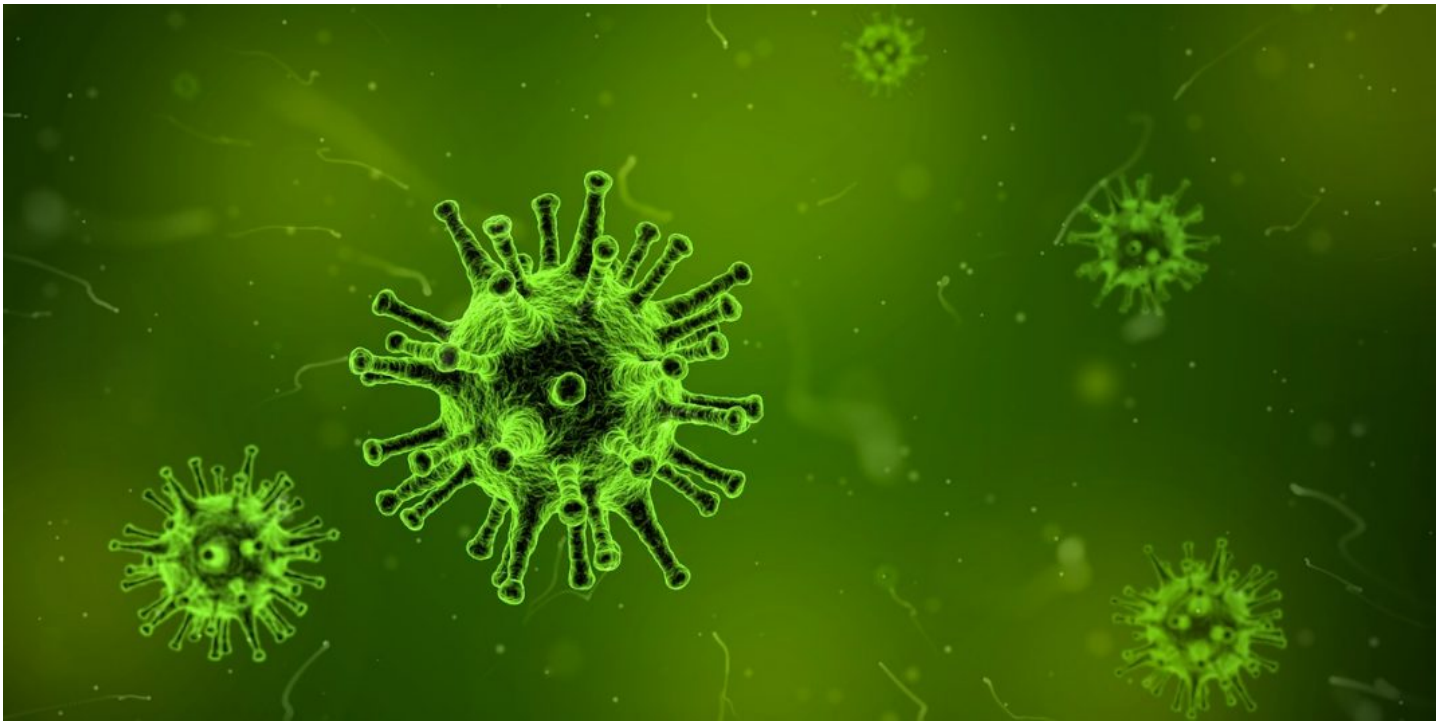

Antibiotics have been part of the recovery process for patients suffering from any infection. However, the convenience of healing infection with antibiotics has led to the misuse of it. Indiscriminate or inappropriate use of the drug, reduced or increased dosage, self-medication are most common cause of drug resistance in India.

While the benefits of antibiotics remain non-comparable, the misuse of it can make a patient resistant to it. This would impact the healing process in cases of severe infections. The general public and doctors must ensure that proper use of the drugs and minimize the development of antibiotic resistance.

Antibiotic resistance is one of the major public health problems especially in a developing country like India where relatively easy availability and higher consumption of medicines have led to the disproportionately higher incidence of inappropriate use of antibiotics and greater levels of resistance compared to developed countries, as per National Center for Biotechnology Information (NCBI).

India is among the nations with the highest burden of bacterial infections. An estimated 410,000 children aged five years or less die from pneumonia in India annually; with pneumonia accounting for almost 25% of all child deaths. The crude mortality from infectious diseases in India today is 417 per 100,000 persons. Consequently, the impact of AMR is likely to be higher in the Indian setting.

The Ministry of Health and Family Welfare, Government of India launched the National Programme on Containment of Antimicrobial Resistance under the Twelfth Five Year Plan (2012–2017) which aims to promote rational use of antibiotics.

A bacterium becomes resistant to drugs when it can protect itself from drug or is capable of neutralizing the drug. Resistance to antibiotics is due to evolution. The bacteria that have developed resistance towards antibiotic will live on to reproduce. This way they pass the trait to their offspring, who will be the fully resistant generation.

Some of the world's most common and potentially most dangerous infections are proving drug-resistant. According to Global Antimicrobial Surveillance System (GLASS), the most commonly reported resistant bacteria were Escherichia coli, Klebsiella pneumoniae, Staphylococcus aureus and Streptococcus pneumoniae, followed by Salmonella spp.

Taking antibiotics even when they're not the right treatment promotes antibiotic resistance. While antibiotics treat bacterial infections, they can't treat viral ones. When it is prescribed to a person with viral infection, the good bacteria are killed.

Viral infections that do not benefit from antibiotic treatment include, cough and cold, flu (influenza), bronchitis, sore throat, ear infections, some sinus infections, stomach flu (viral gastroenteritis), etc. In spite of the growing awareness about antibiotic resistance, overuse is still seen due to various reasons like diagnosing diseases themselves or self-medication.

Consumption of meat and milk is one of the reasons being behind antibiotics resistance. The animals are injected with antibiotics to keep them away from infections. Thus, the antibiotics enter their flesh and milk which is later consumed by humans.

Complications

The antibiotics are prescribed by doctors keeping in mind that the patient's health and quick recovery. Sometimes patients stop taking the antibiotics once they start feeling better which might not kill the bacteria completely. The symptoms might occur again and the patient might have to resume the treatment. This can develop antibiotic-resistant properties among harmful bacteria. It can further lead to serious illness or disability, prolonged recovery process and deaths in some cases.

Taking antibiotics when they are not needed accelerates emergence of antibiotic resistance, making it one of the biggest threats. Antibiotic resistance infections can affect anyone, of any age which can lead to longer hospital stays, higher medical costs and more deaths. With bacteria becoming resistant to antibiotics, common infections will no longer be treatable.

Antibiotic stewardship

The appropriate use of antibiotics often called antibiotic stewardship can help preserve the effectiveness of current antibiotics, extend their lifespan and protect the people from antibiotic-resistant infections. One can help reduce the development of antibiotic resistance by ensuring antibiotics must be used only as prescribed by a qualified healthcare professional to help reduce antibiotic resistance.

Taking daily dosage and completing the treatment course is a must.
In case a dose is missed if prescribed, one must consult the doctor for the follow up. One should never take leftover antibiotics for a later illness. One should always avoid the drug prescribed for another person. Good hygiene must be practiced wherein washing the hands

before eating and washing the raw fruits and vegetables before eating is a mandate. The parents should make sure their children receive recommended vaccinations as some of them protect the child against bacterial infections, such as diphtheria and whooping cough (pertussis).

If one is suffering from any antibiotic allergy, he or she must immediately consult the doctor, so that the drug can be replaced with another one. Do not overuse antibiotics as it can cause bacteria to become resistant and the current treatments will no longer work.

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