

Antibiotic resistance a cause for concern



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In the UK, we are leaving behind the cold-er winter months and looking forward to a much more pleasant spring. Lower temperatures and wet weather during winter typically brings with it an increased number of people suffering from colds and influenza.

I recently read an article about the global issue of antibiotic over-reliance and resistance, and was surprised to learn that many patients still turn to antibiotics for colds and influenza despite them being ineffective against viral infections. Antibiotics revolutionised modern medicine but growing numbers of healthcare experts, including the World Health Organisation (WHO), are concerned about their diminishing effectiveness for treating bacterial infections.

There are various groups of antibiotics such as penicillin, tetracyclines, macrolides, cephalosporins and aminoglycosides, and each one is only effective against certain types of bacterial infections. Increasingly, in cases where antibiotics would normally be prescribed, they simply don't work anymore because many bacterial infections are becoming resistant to treatment.

One of the reasons attributed to a rise in resistance is that there has been an increase

in the prescribing of antibiotics even if they may not be the most effective treatment. Often, this is done to keep patients happy or simply because doctors are unsure of what is causing minor illnesses. It's incredibly difficult for doctors to diagnose whether a sore throat and cough is bacterial or viral. By the time the tests provide results, the patient could have either recovered or deteriorated.

Another cause for concern is that patients are self-treating and taking antibiotics left over from a previous prescription, assuming the antibiotic will treat their condition. If the dosage is too low, the bacterial infection is exposed to non-lethal doses of the antibiotic. The bacteria then develop immunity and mutate into a super-bug. Outbreaks of acinetobacter baumannii, a super-bug which is notoriously difficult to treat with traditional antibiotics, have been attributed to resistance of antibiotics. The Centers for Disease Control and Prevention in the USA estimates that more than two million people become sick every year with antibiotic resistant infections and 23,000 of those die as a result.

Antibiotic resistant infections now have to be treated with carbapenems, known as 'the last resort' of antibiotics used to treat severe infections. They are administered intravenously and require the patient to be hospitalised; pushing up healthcare costs.

Health authorities are trying to reduce antibiotic over-prescription by encouraging doctors to give healthcare advice and only prescribe antibiotics when necessary. Similarly, patients are urged to see their doctors to obtain proper diagnosis. The Health Authority Abu Dhabi (HAAD) has set up programmes to educate the medical industry about the proper use of antibiotics in a bid to curb the problem of resistance. Healthcare authorities in the Middle East have also set up Antibiotic Resistance Surveillance (ARS) systems to pinpoint in the community where antibiotics are being misused and tackle the problem more effectively.

Thankfully, advances are being made to improve diagnosis of infections. At Duke University in the USA, researchers are developing a simple blood test which determines if an infection is bacterial or viral. It looks at genes and immune system behaviour, which act differently depending on the type of infection the patient has. The current test is limited to testing individual strains of bacterial and viral infections. It is a costly and time consuming process which often provides little insight into what is causing the illness, making accurate treatment difficult. Outbreaks of viral infections, such as the recent MERS (Middle East Respiratory Syndrome) coronavirus, would also benefit from the new test. Patients could be tested quickly and effectively to determine if they need to stay in quarantine. In turn, this would reduce the spread of infection and prevent unnecessary or precautionary antibiotic treatment.

We can all help with the growing problem of antibiotic reliance and resistance. Good personal hygiene will increase protection against infections, particularly during cold and influenza seasons. If you're unlucky enough to get a minor cold, while remaining generally healthy with no underlying health problems, the best prescription is rest, a balanced diet and staying hydrated. **MEH**

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