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Using antibiotics correctly

Did you know that most respiratory infections (colds, coughs, bronchitis and the flu) are caused by viruses, and that antibiotics only fight bacteria? If antibiotics are used to treat a viral infection, not only do they not work, but they could be harmful as well – they often have adverse effects.

What is more, using antibiotics too often or incorrectly can increase the likelihood of bacteria becoming increasingly resistant (unresponsive) to antibiotics, which means that these drugs might no longer work when they are really needed.

Why are antibiotic-resistant bacteria dangerous?

Many antibiotics can no longer fight resistant bacteria, so the bacteria are able to spread more and more. Infections that used to be effectively treated with antibiotics do not clear up properly or may even become life-threatening, like pneumonia. This can have serious consequences, particularly for young children, older people and chronically ill people with weak immune systems.

How can you use antibiotics correctly?

If you have an infection and your doctor prescribes antibiotics, it is important to know why and how to take them exactly. Be sure to ask if anything is still unclear.

- Talk to your doctor about the benefits and possible effects of using antibiotics. One reason why this is important is because antibiotics often cause adverse effects, such as allergies, stomach and bowel problems, nausea or fungal infections. If you take antibiotics, it is important to take them exactly as prescribed. In other words: the right dose, regularly, and until you have used up all of the antibiotics in the packet.
- Depending on the medical condition, antibiotics usually have to be taken for several days or sometimes even weeks before they have killed enough bacteria.
- Antibiotics usually provide very fast symptom relief. But just because the symptoms have disappeared, it does not mean that enough bacteria have already been killed. If you stop taking antibiotics too early, the infection may return and the leftover bacteria could become resistant.
- General information about how to take medication can be important and helpful: Is it OK to break the tablets into smaller pieces or crush them? Should they be taken before or after meals? Could they interact with other medications you are taking?
- One packet of antibiotics usually contains exactly the

right amount of tablets for one course of treatment. If there are some tablets left over, they should not be kept for later use or given to other people.

- It is best to take leftover medication to a pharmacy. Throwing it into a bin or the toilet is bad for the environment.

Where can you find more information about using antibiotics correctly?

Your doctor can give you detailed information about what dose of antibiotics to take, how often, for how long and other things you should know. You can also ask a pharmacist or read the package insert for more information.

Glossary

antibiotics

Antibiotics are medicines that can be used for bacterial and some fungal infections. Antibiotics do not work against viruses. Well-known antibiotics include penicillin, tetracycline and chloramphenicol.

bacteria

Bacteria are micro-organisms that, unlike viruses, can exist on their own. Viruses, on the other hand, can only exist inside a living cell. Most bacteria are not harmful to people, and some are actually beneficial. Bowel bacteria support bowel health. However if they get into the urinary system, they can cause an infection there. Doctors prescribe antibiotics for illnesses where bacteria need to be stopped or killed off. Immunisation is also possible against some bacterial infections, such as diphtheria, tetanus or whooping cough.

infection

In medicine, we speak of an infection when a person has caught a germ (an infectious agent). This germ can be a bacterium, a virus, a fungus or a worm. The germ multiplies and then either spreads throughout the body or only attacks one particular organ. As long as there are no signs of a disease, this is called an asymptomatic infection. When the body shows a reaction to the germ in the form of symptoms, this is called a symptomatic infection (an infectious disease). The period between the moment the germs enter the body and the moment the first symptoms of the disease appear, is called the incubation period. It may last a few hours or days, or even many years. An infection does not necessarily have to lead to the onset of a disease.

bronchitis

Bronchitis is the inflammation of the airways, also called bronchi. The usual symptom is that phlegm is coughed up almost daily over a longer period of time. Bronchitis can be acute (temporary) or chronic (permanent).

immune system

The immune system is the body's defense system and its task is to protect the body against germs or degenerated cells (like cancer cells). The immune system is very complex and has not been understood in every detail yet.

There are two components: the cellular immune defense (for example "scavenger cells" and "killer cells") and the complement system ("antibodies", for example).

pneumonia

Pneumonia ("pneu" is of Greek origin and means "breeze") is the medical term for an inflammation of the lung. It can be caused by viruses, bacteria or fungi that pass through the upper airways to get into the lung. It is a disease that more commonly affects old and very young people and other persons with a weak immune system. The symptoms include coughing up sputum, breathlessness, chest pain and fever. Breathing is rapid and can be accompanied by crackling or rattling noises.

Sources

The German Institute for Quality and Efficiency in Health Care (IQWiG)

The German Institute for Quality and Efficiency in Health Care (IQWiG) was established by legislation to provide evaluations of the effectiveness, quality and efficiency of healthcare services. This includes the assessment of medicines as well as the publication of health information for consumers and patients.

Evidence basis of our health information

Our information is based primarily on systematic reviews of the effects of health care. Systematic reviews are necessary to gain an objective picture of health care. In order to do this, a clear question is formulated. Researchers then find all the relevant studies that could answer this question. They then evaluate those studies.

You can find a list of the evidence and other scientific literature on which this information is based at **www.informedhealthonline.org**

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