Resistance to antibiotics is a serious threat to global public health

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The World Health Organisation, WHO, recently published its first Global Report on Antimicrobial Resistance. This publication demonstrates that resistance against antibiotics is a serious threat to global public health. The findings of such report reinforce the views on the need for further prevention of Carl Eric Nord, who is a senior professor at the Institution for Laboratory Medicine at the Karolinska Institute in Stockholm, Sweden.

Nord was involved, as a partner, in the EU-funded project ANTIRESDEV, which was completed in 2013. The project focused on studying the emergence and persistence of antibiotic-resistant bacteria and their effect on the composition of the microbe populations living in our intestine, referred to as microflora. This project resulted in the development of three DNA biochips for rapidly screening of resistant genes in disease-causing bacteria. Nord talks to youris.com about how European medical research can contribute to the surveillance of antibiotic resistance threats.

The antibiotic-resistant bacterium Clostridium difficile, covered in the ANTIRESDEV project, is not among the seven bacteria covered in the latest WHO report. Why not?

WHO is an international body and looks at the very poor developing countries as well as at the developed countries. Clostridium difficile is a

problem for the rich countries. It is a kind of side effect of antibiotic treatment in compromised patients. These patients are mostly elderly, rather sick and have often even other diseases. When you treat them with an antibiotic which changes the intestinal microflora, then colonisation with Clostridium difficile can result in a serious infection. In developing countries, they do not look for a changed microflora and are not prepared to do this, as we heard from colleagues in those countries. Thus, WHO in Geneva, which looks into all countries, has to make different recommendations.

What can be done in order to mitigate or even prevent antibiotic resistance?

Hygiene is the most important action to prevent infections. Special hand hygiene procedures are the most important. Also antimicrobial agents used for cleaning and treatment of infections have to be used in the correct way. Otherwise, you select just the resistant bacteria especially in the intensive care units.

How can we adopt the coordinated action called for by the WHO to minimise emergence and spread of antimicrobial resistance?

This coordinated action is the right way to go about prevention. But, unfortunately, we have a problem in many countries, we do not any longer have an effective infection control, as we used to have it earlier with special nurses for infection control.

In Scandinavian countries, which are small, we have rather few patients with complicated infections. However, we have many tourists travelling from Sweden to other countries, especially Asia. They will be colonised with resistant bacteria when they are there. Although they will not

develop infections themselves, they can spread it when they come back. In order to become sick you have to be compromised. If you have a balanced intestinal microflora, it is not likely that you will be infected.

In order to increase prevention, how soon could the project's rapid screening biochips be introduced in clinics?

It depends on the cost. One of the problems in laboratory medicine nowadays is economy. That is the problem in most European and other well developed countries. You have a fixed budget for doing laboratory analyses. And if it costs too much, then you cannot do it. You can do it from the scientific point of view. That is not a problem. But in general the prices for molecular biological tests are still high, they are very expensive.

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