EDITORIAL COMMENTARY

What's going on antibiotic resistance? What could be done for the reduction of risk?

Dear Sir,

Before Fleming's discovery of Penicillin (1928), there were many infectious diseases without antibiotic therapy.[1] But after nearly a century, the world situation on infectious disease has become quite different. Many diseases have been eradicated by using different health measures such as vaccination, or improvement in public or personal health to find the best medicine to cure the patients.[2] Unfortunately, in the past decades, the number of antibiotic resistance organisms has increased sharply. For example, antibiotic resistance bacteria including multidrug resistance TB (MDR-TB) (even unfortunately WHO reports extensively drug-resistant tuberculosis (XDR-TB)) has been identified in 100 countries. Another example is a high percentage of hospital-acquired infections that are caused by highly resistant bacteria such as methicillin-resistant *Staphylococcus aureus* (MRSA) or multidrug-resistant Gram-negative bacteria (http://www.who.int/mediacentre/factsheets/fs194/en/). In case of antibiotic resistance in viral diseases, the situation is the same as bacterial diseases, such as resistance in malaria in particular *P. falciparum* to antimalarial drugs. Unfortunately, viral infections such as HIV and influenza have been reported many times.[3,4] Perhaps different factors caused the antibiotic resistance, including inappropriate use of antimicrobial drugs, poor infection prevention and control practices and self-treatment. Unfortunately, every day there is a report of scientists on antibiotic resistance of microorganism.[5] In fact, the number of antibiotic resistance microorganism is increasing day by day, and a new microorganism may also be identified in the future. The health measures and regulations are insufficient in order to control the problem. I have a few suggestions that could be effective in at least reducing the risk of antibiotic resistance, of course, with the cooperation of the world population and doctors. The suggestions are as follows:

- Improve the quality of antibiotic by pharmacy companies.
- Improve the clinical diagnosis of the infected patients who need antibiotics.
- Improve the laboratory identification, with good quality of medium and antibiogram kits.
- Improve the prescribing of medicine to patients (prescribing and dispensing antibiotics only when needed).
- Improve the best practices and usual hand washing for all healthcare workers and patients in hospitals.
- Improve the measures to keep hospital environment dry.
- Clean the hospital environment by detergents rather than disinfectants.
- Use disinfectants when needed based on hospital infection team/committee advices.
- Education is very important and that must not be stopped anyway. Education for doctors is primary to reduce prescriptions.
- Public education is the next step to have drugs based on doctor's prescription and eliminate self-treatment with antibiotics (which may not be effective).
- Committees at national and international levels must be monitored the latest situation by expert advices.

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