

Commentary

Basically, the important tool for treatment in medicine is “drug.” Several drugs are available for use in the present day. Of several groups of drug, antibiotic seems to be an important one. Quinolone is an important member of antibiotic. In brief, quinolone is classified as a class of antibacterial agents for the treatment of several infectious diseases especially for genitourinary tract and respiratory tract infections.^[1] It is considered as a safe broad spectrum antibiotic with high bioavailability.

The levofloxacin is a presently widely used drug in this group at present. It is a kind of new generation ofloxacin, an L-isomer form, with a basic structure modified from nalidixic acid.^[2] It can be orally administered and have good antibacterial drug active against most bacteria. In USA, levofloxacin is approved for treatment of several infections including to community-acquired pneumonia, severe urinary tract infections and acute pyelonephritis.^[2] However, similar to many drugs, the problems relating to using of this drug can be expected. The first problem is on the chance to induce highly resistant pathogens.^[2] A control of appropriate use of levofloxacin is recommended.^[2] The second important problem is the possible adverse effects of levofloxacin in general usage. This has to be concerned since some adverse effects are considered serious.

Indeed, the adverse effect due to quinolone is not rare. The spectrum of adverse effects include anaphylaxis, skin reaction, joint reaction as well as gastrointestinal disorder.^[1] However, a less common adverse effect on neurological system should be mentioned. Of interest, the neuropsychiatric adverse effect due to use of quinolone can be seen at considerable rate and many publications in the literatures of adverse effects due to quinolone are on neuropsychiatric problems.^[1]

Special precaution is proposed for use in the elderly, children, and patients with epilepsy.^[3] Focusing on levofloxacin, the neuropsychiatric adverse effects are also detectable.^[3] The problem can range from mood disorder to hallucination. The present report on the levofloxacin related anxiety and insomnia can be a good example.^[4] Here, the two important psychiatric-related conditions, anxiety and insomnia, are mentioned.^[4] Focusing on anxiety, it is already shown as important adverse effect of levofloxacin in animal model.^[5] Also, the animal model study also proves that levofloxacin disturbs the normal sleeping duration.^[5] For sure, both anxiety and insomnia are not very rare but usually forgotten adverse effects of levofloxacin in human beings. Generally, more serious neuropsychiatric adverse effect due to levofloxacin can be seen. In the worst case, the acute psychosis can be detected.^[6-8] Also, although it is rare, the serious neurological complication such as severe seizure (<3/million) and neuromuscular tendon tear (<4/million) are also registered as adverse effect due to levofloxacin administration.^[8]

Indeed, the diagnosis of drug induced neuropsychiatric adverse effect can be difficult since there are many confounding factors that can lead to the neuropsychiatric problem in the sick patients. Nevertheless, when a suspicious case is detected, the concern on the adverse effect condition and co-investigation between neurologist and psychiatrist can be helpful. Although it does not help definitively diagnose, the improvement of neuropsychiatric disorder after cessation of levofloxacin can be a clue for presumptive diagnosis. As a screening, the general physician has to take the history of underlying neurological or psychiatric problem of the case that the levofloxacin prescription is planned. If it is possible, select other antibiotic for those cases with

underlying neuropsychiatric disorders. Adjustment of dosage should be carefully done in cases with underlying organ dysfunction such as renal and hepatic impairment. In the elderly, careful history taking to find the possible concomitant drug use, especially for nonsteroidal anti-inflammatory drugs, that can increased risk of developing neuropsychiatric adverse effect is required.^[9] This should also be practiced for prescription of any drugs that have the report on induction of neuropsychiatric disorders.

In conclusion, to use levofloxacin without the problem of neuropsychiatric adverse effect, please consider these simple rules

1. Use of levofloxacin based on the principle of rationale use of antibiotic drug.
2. Good history taking to detect history of problem of drug adverse effect, underlying diseases and other risks.
3. Physical examination to find the possible minor neuropsychiatric disorders that can be emerged after drug administration.
4. Give information on the possible adverse effect to the patient to observe.
5. Follow up both therapeutic outcome and possible adverse effect in following up visit.

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