Correspondence

Lesson from surveillance of drug-resistant tuberculosis in Gujarat

Sir,

Recent state-wide surveillance of drug-resistant tuberculosis in the state of Gujarat has shown resistance to fluoroquinolones (FQ) in 24 per cent cases (19% among new and 25% among previously treated TB cases). This increase of drug resistance correlates well with the very widespread use (the broad indications of this class of antimicrobials in lower-respiratory, gastrointestinal, genitourinary etc.) for the treatment of other infections. The prevalence of fluoroquinolone-resistant tuberculosis is increasing. The patients with resistance to any of quinolones used as antibiotics are likely to develop cross resistance to other or newer quinolones, used for treating tuberculosis. So this is further complicated by inherent cross-resistance and ineffectiveness of such an important group of drugs in treating MDR-TB. Multi-drug resistant tuberculosis (MDR-TB), defined as Mycobacterium tuberculosis resistant to isoniazid and rifampin, threatens TB control because of high treatment failure and death rates, and complexities in diagnosis and treatment. MDR-TB can be a result of failure of drug sensitive TB treatment with development of resistance (acquired MDR-TB) or direct transmission of an MDR strain (primary MDR). Acquisition can arise from medical error, poor TB control programmes or poor patient adherence to treatment. The extensively drug-resistant TB (XDR-TB) is due to resistance of M. tuberculosis to rifampin, isoniazid (definition of MDR-TB) plus resistance to any fluoroquinolone and any of the second-line anti-TB injectable drugs. So XDR-TB is more difficult and expensive to treat than MDR-TB. The resistance to any fluoroquinolone is an essential criterion of XDR-TB. The number of patients with XDR-TB being diagnosed is increasing and the global threat of extensively drug-resistant TB has revealed weaknesses in TB control and also has highlighted the lack of new tools for TB control.

According to available data of 2008, an estimated 4,40,000 cases and 1,50,000 deaths of MDR-TB occur globally. China and India have nearly 50 per cent of the world’s estimated incident cases MDR-TB of which at least 99,000 cases are contributed from India. XDR-TB poses serious challenges for public health and clinical management. Laboratory diagnosis is difficult and little evidence exists to guide clinicians in treating XDR-TB effectively. Treatment for XDR-TB is difficult, usually requiring at least 18-24 months with at least four to six second-line anti-TB drugs and success rates are generally 30-50 per cent. The outcome is further worsened in HIV-infected patients. Management of contacts to infectious XDR-TB patients is difficult as we do not have guidelines and there is a lack of proven effective treatment for XDR latent tuberculosis infection.

The fluoroquinolones have excellent in vitro and in vivo activity against M. tuberculosis. The fluoroquinolones have potential to shorten the duration of tuberculosis treatment and found to be most useful in treating MDR-TB. Patients who receive fluoroquinolones before starting standard anti-TB treatment have poorer outcomes than do patients who do not receive fluoroquinolones, because of the emergence of drug-resistant TB probably due to cross-resistance among fluoroquinolones. Losing the fluoroquinolones means we are losing a potent and minimally toxic option for second-line drug therapy. At present, possibly no better drugs are in the pipelines for the future and we are left with a few bacteriostatic antituberculosis drugs. So the use of such drugs like fluoroquinolones should be restricted to the treatment of confirmed MDR-TB cases, particularly in India.
In India, fluoroquinolones are widely available for the treatment of other bacterial infections. By misusing the fluoroquinolones, we are facilitating an increase in the emergence of XDR-TB. The future with regard to MDR- and XDR-TB in the coming decades looks to be grim, because we are rapidly losing very effective drugs, like quinolones, for their management. Fluoroquinolones should not be the first-line antibiotics in country like India where TB is endemic. In the era of MDR- and XDR-TB there is an urgent need in India for a national policy to stop misuse of fluoroquinolones.

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References