Is Shorter Treatment Regimen for Multidrug-resistant Tuberculosis feasible in Indian Children?

Traditionally, patients with rifampicin-resistant (RR) or multi-drug resistant tuberculosis (MDR-TB) are treated with a combination of second-line drugs, usually for 18 months or more [1]. Recently, World Health Organization (WHO) recommended a shorter and cheaper treatment regimen for MDR-TB [2]. Standardized shorter MDR-TB regimen consists of seven drugs and a treatment duration of 9-12 months [1]. The regimen consists of 4-6 months of kanamycin, high-dose moxifloxacin (12 mg/kg/day, not to exceed 800 mg daily), prothionamide or ethionamide, clofazimine, pyrazinamide, high dose isoniazid (15 mg/kg, not to exceed 900 mg daily) and ethambutol followed by 5 months of moxifloxacin, clofazimine, pyrazinamide and ethambutol [1]. These recommendations were based on studies carried out in several countries – mostly in Africa [1,3].

Ideally, shorter MDR-TB regimen should be given to persons (adults or children) with MDR-TB if they have not been previously treated with second-line drugs, and if additional resistance to pyrazinamide, ethambutol or the second- line drugs used in the regimen is unlikely. Therefore in children knowing the drug susceptibility (DST) result of the source case (if identified) or the entire DST results of all the first and second line drugs in the patient's sample is important when considering the use of the shorter regimen.

In a study from Mumbai, pre-XDR TB [(MDR-TB along with resistance to either a fluoroquinolone or an aminoglycoside (apart from streptomycin)] was the most common form of drug-resistant tuberculosis with observed prevalence at 56.8% compared to 29.4% for MDR-TB in adults [4]. The proportions of patients with ofloxacin, moxifloxacin and ethionamide resistance were 75.3%, 69.5% and 52.5%, respectively in adults [4]. In children with drug-resistant tuberculosis, moxifloxacin resistance was 46%, ofloxacin was 47.6%, ethionamide resistance was 49.2%, pyrazinamide resistance was 55.6% and ethambutol resistance was 60.3% [5]. There is also an increase in prevalence of pre-XDR TB in children as compared to MDR-TB [5]. Most of these children would have resistance to isoniazid, rifampicin, ethambutol, pyrazinamide, quinolones and ethionamide. Thus the shortened MDR-TB regimen may provide inadequate treatment to these patients. Starting this regimen in children based only on the geneXpert results of rifampicin-resistance without testing for DST to all the first and second line drugs would be a logistical mistake, and may lead to more drug-resistant forms of tuberculosis, and treatment failures. Treatment of drug-resistant tuberculosis should be individualized based on the DST results.

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Is Vitamin D Deficiency Linked to Critical Illness?

In recent years, dozen of studies have demonstarted that the prevalence of vitamin D deficiency (VDD) among critically-ill children at admission to pediatric intensive care unit (PICU) was in range of 25%-84% [1-5]. Few of these demonstrated that VDD was associated with greater severity of illness and longer PICU stay [1-3].

We read with interest the research article on the topic by Shah, *et al*. [5]. Authors demonstrated a high