TREATING TUBERCULOSIS IN SPECIAL SITUATIONS

MUKUNDA PRASAD KAFLE
Assistant Professor, Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal. Email: mpkafle@gmail.com

Treatment of Mycobacterium tuberculosis infection (tuberculosis disease) involves the use of multiple antimicrobials over several months. Therapy directed against tuberculosis (anti-tubercular therapy, or ATT) consists of rifampicin and isoniazid given daily for 6 months and pyrazinamide and ethambutol given daily for 2 months. This therapy might need customization in some special situations. Chronic kidney disease (CKD) is a special state where the individual possesses higher risk of developing tuberculosis disease as compared to non-CKD population. Patients on dialysis may be up to 10 times the risk. Furthermore, drug metabolism and excretion is also abnormal in this situation. Ethambutol and pyrazinamide are excreted by the kidneys. Therefore, if failed kidneys can't adequately remove the drugs, accumulation to toxic levels might be the fate. In glomerular filtration rate (GFR) of more than 30ml/min, normal antitubercular regimen may be utilized following the lower end of the recommended dosing per kg body weight with vigilant surveillance for adverse events. In conditions of advanced CKD, ethambutol needs dose adjustment according to the level of GFR as guided by serum creatinine level. However, to ensure optimal therapeutic levels of the drugs and avoid subtherapeutic levels, switching the schedule of therapy from daily to thrice weekly at full dosage has also been recommended. This should follow the directly observed strategy as followed in the treatment of tuberculosis. These strategies may work well for drug susceptible infections but in cases of drug resistant disease, susceptibility pattern should be followed. In hemodialysis patients, antitubercular drugs should be administered after hemodialysis. Patients with solid organ transplantation are at higher than normal risk for tuberculosis. This risk has been mentioned to be as high as 30 times. Furthermore, by the virtue of their use of immunosuppressive drugs, use of rifampicin in the antitubercular regimen is tricky. Rifampicin induces the metabolism of calcinurine inhibitors, demanding up titration of these immunosuppressive drugs by double or more the previous dose. Moreover, some authorities suggest replacing rifampicin by rifabutin. In conclusion, treatment of tuberculosis needs customization in special circumstances.

Key words: Renal Dialysis; Tuberculosis; Organ Transplantation; Glomerular Filtration Rate; Antitubercular Agents

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