Noncompliance to anti-tuberculosis treatment- A big challenge in control of TB

Irfan Ullah1*, Saima Bashir2*, Sarah Arif3*

1Department of Internal medicine, Naseer Teaching Hospital, Kabir Medical College Peshawar, Pakistan
2Department of Pathology, Gomal Medical College, Medical Teaching Institute, Dera Ismail Khan, Pakistan
3Department of Microbiology, Faculty of Allied Health Sciences, Iqra National University, Peshawar Khyber Pakhtunkhwa, Pakistan

Address for correspondence
*These authors contributed equally to this work and should be considered as 1st author
¶These authors should be considered as sharing Correspondents authors

Tuberculosis is an infectious disease cause by Mycobacterium tuberculosis (MTB). Usually, the lungs infected by MTB are called pulmonary tuberculosis (TB) though tuberculosis can infect other parts of the body and such TB is called extra pulmonary TB.1,2 As reported by World Health Organization (WHO), worldwide incidence of TB is 10.2 million cases per year with 1.5 million deaths happen each year.3 Successful TB treatment requires administration of anti-tuberculosis drugs of various combinations for at least 6 months.2,3 Adherence to long term anti-TB treatment is crucial and inadequate medical treatment is favoring emergence and spread of drug resistance TB. The therapeutic approach for drug resistance TB is burdensome as unusual to first line drugs are expensive, more toxic and less potent.2 This long treatment should be continued for long even after apparent clinical improvement which is one of the main reason in non-completion of treatment course. Other causes for incomplete treatment are lack of education, social stigmatization, and anxiety of side effects.3

Non-compliance mean one or more of given characteristics: 1) Missing more than two subsequent weeks of directly observed therapy–short-course strategy (DOTS) 2) Treatment extension more than 30 days as a result of sporadic missed doses, or 3) Poor outcome of therapy, defined as a clinical or microbiologic failure of initial therapy resulting in relapse, morbidity or death due to TB in defaulters.4 Non-adherence to tuberculosis treatment causing lengthens of infectious period, relapse, drug-resistance emergence, and rising of morbidity and mortality.5 The main reasons for not following anti-tuberculosis drug properly are side effect of medicine, missing of appointment, can’t afford transportation cost, deficiency of social support, forgetting medication on time, away from home, deficiency of communication with health professional and non-availability of medicine at market.6

Multidrug resistant tuberculosis (MDR-TB) is the type of TB which is at the same time resistant to at least two 1st line Anti-TB drugs (rifampin and isoniazid). It is thought that MDR-TB develops due to poor compliance to anti-TB medication. The WHO has set up DOTS approach for TB control. In DOTS programme all TB patients is manage by healthcare providers while taking antibiotics. Tuberculosis patients who are susceptible to anti-TB drugs are put on rifampin, isoniazid, and pyrazinamide treatment as component of DOTS.7 Drug resistant of TB is getting higher rapidly worldwide with nearly 0.5 million cases of MDR-TB documented annually. The most of MDR-TB is found in former Soviet Union states (FSU) and in Asia. However noncompliance is considered one of leading factor in development of resistance to TB treatment.8 The development of drug resistance as result of insufficient treatment generating a selection pressure on spontaneously occurring mutants, make difficult management of TB; MDR- and extensively drug resistant tuberculosis represent big challenges in the control of TB worldwide.9 Most common are multidrug resistance to two most effective anti-TB is isoniazid and rifampicin. Drug resistance arises because of inadequate tuberculosis treatment, which may be an inadequate dose, an inadequate duration, incorrect combination of tuberculosis drugs or irregular drug-taking.10 The big challenge in TB treatment is non-compliance of patient to proper long term anti-TB treatment and play a role and
development of multidrug resistance. It will take burden on families in term of cost, morbidity and mortality.

The most effective ways to challenge this culprit is either to put patients on DOT or to counsel patients and their families regarding long term treatment, probable side effect and long term complication when not taken treatment properly.

References
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