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Case Report

A Consultation-Liaison Psychiatry Approach to Anxiety in a Patient with Multidrug-Resistant Tuberculosis: Case Report

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ABSTRACT

The interplay of social stigma, the grueling duration of treatment, and residual drug toxicities frequently triggers psychiatric comorbidities in multidrug-resistant TB (MDR-TB), which can severely compromise treatment adherence. We reported a 24-year-old female MDR-TB patient presented with escalating insomnia and severe anxiety. Her psychological distress followed the onset of physical complications three months prior, including peripheral paresthesia (tingling) and impaired mobility. These physical symptoms exacerbated her breathlessness and sleep disturbances. Following a referral to the psychiatry department, a Consultation-Liaison Psychiatry (CLP) framework was initiated. Through integrated psychiatric intervention and pharmacological dose adjustment for her MDR-TB regimen, the patient's anxiety significantly diminished, and her physical side effects became manageable. The following evaluation of MDR-TB, both clinically and radiologically, showed improvement. The patient declared cured after a six-month duration of MDR-TB treatment. CLP provides a vital bridge in specialized care, addressing the depression, anxiety, and psychosis that often act as barriers to successful MDR-TB recovery.

INTRODUCTION

Multidrug-resistant tuberculosis (MDR-TB) remains a major health problem in the world, including Indonesia. MDR-TB is one of the burdens of health in the world because of its longer treatment duration, higher infection rate, and lower success rate[1]. The previous standard MDR-TB regimen with *Cyclocerines*, an antibiotic that could modulate *N-methyl-d-aspartate* (NMDA) receptor and inhibit *gamma-aminobutyric acid* (GABA) in the brain, has been known to have a neuropsychological side effect, such as mood swings, anxiety, irritability, and insomnia, that affect patient compliance. Nowadays, a new regimen has been announced with *Bedaquiline, Pretomanid,*

Linezolid, and Moxifloxacin (BPaLM), which has a shorter duration and lower neuropsychiatric side effects than the old regimen[2]. However, the problem of mental health disorders in MDR-TB patients is more complex than just a drug side effect; the interplay of social stigma from family or society, the grueling duration of treatment, and residual drug toxicities that the patient has experienced could trigger psychiatric comorbidities in multidrug-resistant TB (MDR-TB). This condition can severely compromise treatment adherence[3]. In this condition, the role of a psychiatrist is crucial, utilizing a consultation-liaison psychiatry approach to support pulmonologists and encourage patients to undergo treatment for successful outcomes[4].

CASE PRESENTATION

A 24-year-old woman with MDR-TB was referred by a pulmonologist to the department of psychiatry with anxiety. She has been undergoing MDR-TB treatment with the newest drug regimen, such as *Bedaquiline, Pretomanid, Linezolid, and Moxifloxacine* (BPaLM) for five months. This patient has a long history of TB treatment for years before with drug-sensitive tuberculosis (DS-TB), and now she declared relapse with MDR-TB confirmed bacteriologically. She said that she feels anxiety and palpitations every day, which worsened one month earlier. This condition makes her feel uncomfortable. Her husband also said that she finds it easy to be angry and have insomnia. Her psychological distress followed the onset of physical complications three months prior, including peripheral paresthesia (tingling) and impaired mobility.

In the history of the baseline psychiatry examination, the patient was examined by the depression anxiety stress scale (DASS-42), and the result was moderate anxiety and normal levels of both stress and depression. The general condition was good. The vital sign is within normal limits. The peripheral paresthesia has decreased since the ancillary drug to reduce neuropathy has been given, with a visual analog scale score from 10 to 2. The patient understands the purpose of the treatment, and his complaints are related to the side effects of the medication. The patient is still enthusiastic about completing the treatment, with only two months left, hoping to recover to care for his child. Psychiatric status: impression is calm, general condition is adequate, relevant verbal contact, consciousness is clear compos mentis, good orientation, anxious affect, normal thought process about illness, normal volition, normal perception, and normal psychomotor

Based on clinical and psychiatric examination data, the patient was diagnosed with Adjustment disorder, anxiety-depression reactions (ICD-10 F43.2). It was decided to delay the psychiatric drug because the patient said that her anxiety had decreased, and she still sleeps enough. It was decided to start a non-psychopharmacological treatment, such as supportive psychotherapy, empathic validation, suggestion, encouragement every two weeks, and

consultation-liaison psychiatry (CLP). After two weeks of evaluation, the patient said his condition is improving now. The patient said she is a bit anxious for no apparent reason. The patient said his legs are heavy when lifted and painful. Later, the patient's diagnosis changed with Psychological and behavioral factors associated with disorders or diseases (ICD-10 F54). The psychopharmacology therapy was added with *Escitalopram* 5 mg once daily, and consultation-liaison psychiatry provides advice to fellow pulmonologists to manage neurological side effects of medications in patients. The pulmonologist added an ancillary drug, such as Gabapentin 300 mg once daily, and Amitriptyline 25 mg once daily, and adjusted the vitamin B6 dose to 200 mg once daily to improve peripheral paresthesia.

Through integrated psychiatric intervention and pharmacological dose adjustment by using addition of an ancillary drug while continuing the MDR-TB regimen, the patient's anxiety significantly diminished, and her physical side effects became manageable. The following evaluation of MDR-TB, both clinically and radiologically, showed improvement. Her body weight increased, and the side effects of the drug were reduced. Patient completed the MDR-TB treatment for six months with bacterial sputum culture conversion since the first month (Table 1). The chest x-ray evaluation also improved (Figure 1). Later, the patient declared cured from MDR-TB after six months of therapy.

Table 1. Mycobacterium Tuberculosis culture sputum evaluation

Time	***Method***	***Result***
Baseline examination	*Mycobacterium Growth Indicator Tube*	Positive
Follow-up 1st Month	*Lowenstein Jensen*	Negative
Follow-up 2nd Month	*Lowenstein Jensen*	Negative
Follow-up 3rd Month	*Lowenstein Jensen*	Negative
Follow-up 4th Month	*Lowenstein Jensen*	Negative
Follow-up 5th Month	*Lowenstein Jensen*	Negative
Follow-up 6th Month	*Lowenstein Jensen*	Negative

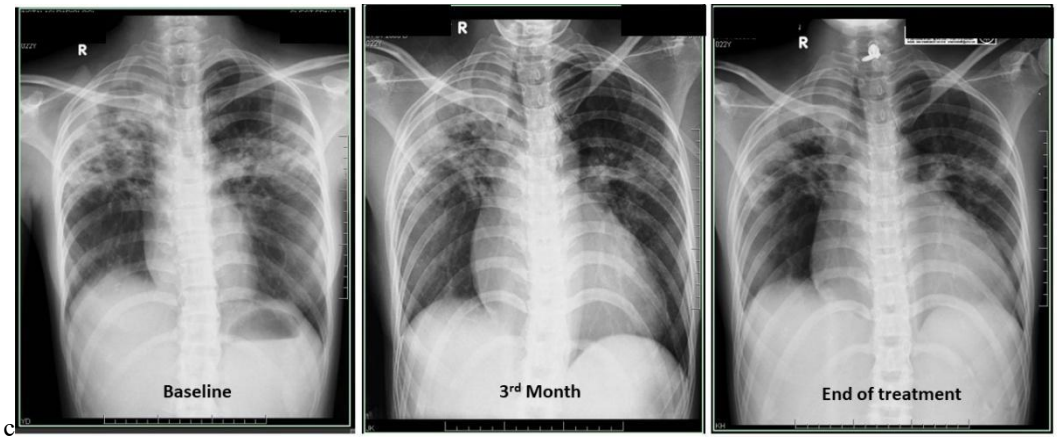

Figure 1. The chest x-ray evaluation of the patient improved during MDR-TB treatment

DISCUSSION

The intersection of Tuberculosis (TB) and mental health is characterized by a high comorbidity rate, with approximately 40%–70% of TB patients suffering from psychiatric conditions. This bidirectional relationship creates a vicious cycle: the chronic nature of TB induces psychological trauma, while untreated mental illness serves as a primary driver for poor prognosis and treatment default. The treatment of MDR-TB is challenging due to a lot of drug consumption and longer treatment duration, which can lead to psychiatric problems in the patient[5]. Some drugs of the MDR-TB regimen also contain drugs that have side effects on psychiatric disorders, like *Cycloserine*, an antibiotic used for multidrug-resistant tuberculosis. It frequently causes significant neuropsychiatric side effects due to its penetration into the central nervous system by modulating NMDA, inhibiting GABA production, and increasing dopamine activity in the brain[6]. *Cyclocerine's* neuropsychiatric side effects affect up to 50% of users. Common reactions include depression, anxiety, irritability, insomnia, and confusion, while severe cases may involve psychosis, hallucinations, and suicidal thoughts, usually within the first 3 months[7].

Nowadays, the new regimen has been introduced with some advantages, including shorter duration and higher efficacy. The new regimen consists of *Bedaquiline, Pretomanid, Linezolid, and Moxifloxacin* (BPaLM). The newer regiment have less side effects than the older regiment including psychiatric side effects. The comparison between the BPaLM regimen and the longer regimen, which contained *Cyclocerines* in terms of psychiatric effects, highlights a significant shift from a highly neuropsychotoxic regimen to one with a safer, though not side-effect-free profile[8]. In this case, patients have been treated by the BPaLM regimen, which is safer in terms of psychiatric side effects than the individual regimen. This regimen has a different target drug. *Bedaquiline* inhibits *ATP synthase, Pretomanid* is effective against resistant TB strains, *Linezolid* and *Moxifloxacin* can penetrate bacterial TB membranes[9]. The most common adverse effects of the BPaLM regimen are peripheral neurotoxicity, anemia, and optic neuritis, which are mostly associated with *Linezolid*. The mechanism of *Linezolid* is binding to *bacterial ribosomes* to stop them from making proteins, but *mitochondrial ribosome* in humans has a similar structure to bacterial ribosomes, so this drug could mistakenly bind to *human mitochondrial ribosomes*. This act could damage the nerve cells. *Moxifloxacin*, a *fluoroquinolone*, could enter the blood-brain barrier and interfere with the brain signaling system, which causes psychiatric side effects such as delirium, insomnia, and psychosis[10].

Different from physical side effects caused only by drug adverse effects, the psychiatric problems in MDR-TB patients can also come from the impact of the disease condition itself. Patients could feel a fear of contagion, fear of financial problems, fear of stigma from society, even their families, and fear of side effects and disease progression[3]. Patients with a history of mental

illness before are also vulnerable to having tuberculosis and have a worse outcome of treatment than patients with no history of mental illness before[11]. In this case, the patient has been screened for anxiety, and the DASS-42 result was moderate. Based on the psychiatry screening result, patients with a high risk of anxiety should be monitored well and referred to the psychiatry department if any sign of mental illness is detected. The MDR-TB regimen was continued, despite the side effects of neurology, because the onset of side effects was after nine weeks of treatment, and after adding ancillary drugs, the neurology side effects improved.

Physical and mental health are two inseparable things[12]. The high number of cases of the relationship between physical illness and mental disorders requires a health system that bridges the two[13]. Psychological issues are important because they can affect the treatment success in MDR-TB patients. Professional support from health care facilities, including a psychiatrist, is important to encourage and motivate patients to finish their treatment[5]. In this aspect, the Consultation-Liaison Psychiatry (CLP) could facilitate handling psychological issues in patients. CLP also acts as the bridging team with other clinicians to manage difficult cases with psychiatric problem involvement[4]. Consultation-liaison psychiatry is a branch of the psychiatry discipline that bridges psychiatric science with other medical specializations in a hospital. CLP is an integration of a multidisciplinary team, including a specialist doctor, psychologist, nurse, social worker, and religious practitioner. Different from just consultation between medical departments in a hospital, CLP not only receives or answers consultations from other departments, but also manages patients holistically, including mental, emotional, and social aspects, and also acts as a coordinator to identify mental health problems and make a strategic plan with the other healthcare team, including a medical specialist doctor[4].The illustration of consultation-liaison psychiatry in MDR-TB care is shown in Figure 2.

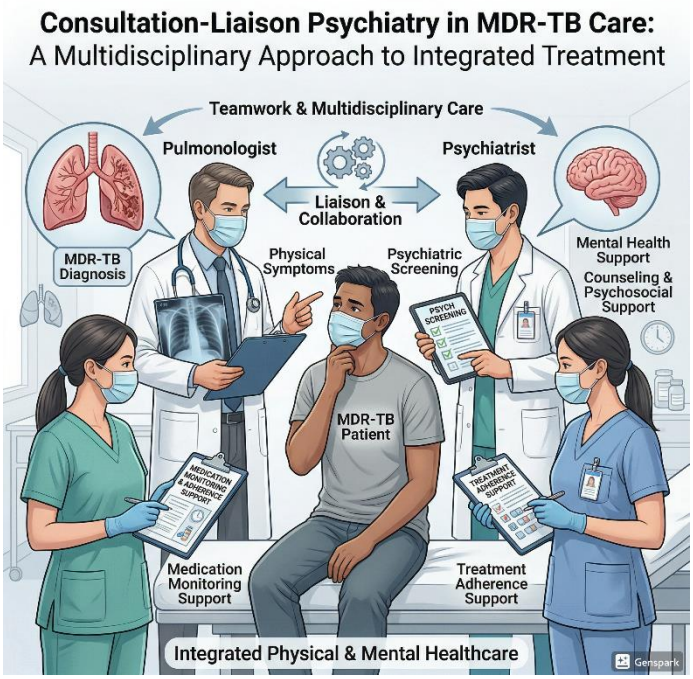

Figure 2. Consultation-liaison psychiatry in MDR-TB care (AI-generated, no licensed medical illustration)

In the hospital, CLP areas are in the field of psychiatry, including education, clinical, and research with other non-psychiatric colleagues in health facilities[14]. In CLP, psychiatrists act as consultants to other clinical colleagues. Psychiatrists can provide expert opinions regarding the management of mental illness problems. Psychiatrists have the ability to assess and formulate complex cases that are consulted by non-psychiatrists. A psychiatrist must know the potential drug effects and drug interactions that affect the patient. The patient has also been informed about their illness and the courage to continue treatment[15].

Good communication between psychiatrists and other clinicians will increase the effectiveness of treatment and patient recovery rates. Collaboration between psychiatrists and pulmonologists has become an integral part of the management of MDR-TB. Psychiatric screening is performed before treatment to determine the risk of psychiatric disorders in patients. Consultations between psychiatry and pulmonology are also carried out and covered by the national health insurance system. In our case, CLP has been tried to identify and treat mental and psychological disorders in MDR-TB patients and has been included in the national guidelines for tuberculosis management[3].

CONCLUSION

This case report highlighted that the treatment of MDR-TB is challenging due to drug side effects, socioeconomic, and psychosocial problems, which can lead to psychiatric problems in the

patient. The role of psychiatrist is important to handle psychiatric problems in MDR-TB patients with a consultation-liaison psychiatry (CLP) approach. CLP provides a vital bridge in specialized care, addressing the depression, anxiety, and psychosis that often act as barriers to successful MDR-TB recovery.

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