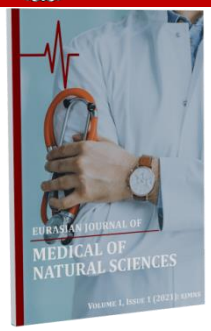
EURASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
Innovative Academy Research Support Center
IF = 7.921 www.in-academy.uz



CLINICAL AND MICROBIOLOGICAL FEATURES OF MULTIDRUG-RESISTANT PULMONARY TUBERCULOSIS IN PATIENTS WITH COMORBID CONDITIONS

Shamshieva Nilufar Nigmatillaevna
Mukhamedov Kazim Sabitovich
Kurbanov Alisher Khushbakaevich
Department of Infectious Diseases, Children's Infectious Diseases, Phthisiology and Pulmonology
Tashkent State Medical University
https://doi.org/10.5281/zenodo.15675725

ARTICLE INFO

Received: 08th June 2025
Accepted: 15th June 2025
Online: 16th June 2025

KEYWORDS

Multidrug-resistant tuberculosis, MDR-TB, pulmonary tuberculosis, comorbid conditions, diabetes mellitus, HIV, chronic obstructive pulmonary disease, clinical features, microbiological characteristics, treatment outcomes.

ABSTRACT

Multidrug-resistant pulmonary tuberculosis (MDR-TB) remains a significant global health challenge, particularly in patients with comorbid conditions that complicate diagnosis and treatment. This study investigates the clinical manifestations, microbiological characteristics, and treatment outcomes of MDR-TB in patients with associated diseases. A cohort of 120 patients with confirmed MDR-TB was analyzed, of whom 58 had one or more comorbid conditions, including diabetes mellitus, chronic obstructive pulmonary disease (COPD), HIV infection, and cardiovascular diseases. The study found that comorbidities altered the clinical presentation of MDR-TB, often leading to atypical radiological patterns and prolonged bacterial persistence. Microbiological analysis revealed higher rates of extensive drug resistance and delayed sputum conversion in patients with comorbidities. Treatment outcomes were less favorable in this group, with increased rates of treatment failure and adverse drug reactions. The findings underscore the need for individualized treatment strategies and integrated care approaches for MDR-TB patients with comorbid conditions to improve clinical outcomes.

КЛИНИКО-МИКРОБИОЛОГИЧЕСКИЕ ОСОБЕННОСТИ МНОГОЛЕКАРСТВЕННО-УСТОЙЧИВОГО ТУБЕРКУЛЕЗА ЛЕГКИХ У БОЛЬНЫХ С КОМОРБИДНЫМИ СОСТОЯНИЯМИ

Шамшиева Нилуфар Нигматиллаевна
Мухамедов Казим Сабитович
Курбанов Алишер Хушбакаевич
Кафедра инфекционных болезней, детских инфекционных болезней, фтизиатрии и пульмонологии
Ташкентский государственный медицинский университет
https://doi.org/10.5281/zenodo.15675725

ARTICLE INFO

Received: 08th June 2025
Accepted: 15th June 2025
Online: 16th June 2025

KEYWORDS

ABSTRACT

Туберкулез легких с множественной лекарственной устойчивостью (МЛУ-ТБ) остается серьезной проблемой мирового здравоохранения, особенно у пациентов с

EURASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES
Innovative Academy Research Support Center
IF = 7.921 www.in-academy.uz

Туберкулез с множественной лекарственной устойчивостью, МЛУ-ТБ, туберкулез легких, коморбидные состояния, сахарный диабет, ВИЧ, хроническая обструктивная болезнь легких, клинические особенности, микробиологическая характеристика, результаты лечения.

сопутствующими заболеваниями, которые осложняют диагностику и лечение. В этом исследовании изучаются клинические проявления, микробиологические характеристики и результаты лечения МЛУ-ТБ у пациентов с сопутствующими заболеваниями. Была проанализирована когорта из 120 пациентов с подтвержденным МЛУ-ТБ, из которых 58 имели одно или несколько сопутствующих заболеваний, включая сахарный диабет, хроническую обструктивную болезнь легких (ХОБЛ), ВИЧ-инфекцию и сердечно-сосудистые заболевания. Исследование показало, что сопутствующие заболевания изменяют клиническую картину МЛУ-ТБ, часто приводя к атипичным рентгенологическим картинам и длительной бактериальной персистенции. Микробиологический анализ выявил более высокие показатели обширной лекарственной устойчивости и замедленной конверсии мокроты у пациентов с сопутствующими заболеваниями. Результаты лечения были менее благоприятными в этой группе с более высокими показателями неэффективности лечения и побочных реакций на лекарства. Результаты подчеркивают необходимость индивидуальных стратегий лечения и комплексных подходов к оказанию помощи пациентам с МЛУ-ТБ с сопутствующими заболеваниями для улучшения клинических результатов.

KOMORBIDA SHARTLARI BO'LGAN BEMORLARDA KO'P DORI-DARMONLARGA CHIDAMLI O'PKA TUBERKULYOZINING KLINIK VA MIKROBIOLOGIK XUSUSIYATLARI

Shamshieva Nilufar Nigmatillaevna
Muxamedov Kazim Sabitovich
Qurbonov Alisher Xushbakaevich
Yuqumli kasalliklar, bolalar yuqumli kasalliklari,
ftiziatriya va pulmonologiya kafedrasi Toshkent davlat tibbiyot universiteti
https://doi.org/10.5281/zenodo.15675725

ARTICLE INFO

Received: 08th June 2025
Accepted: 15th June 2025
Online: 16th June 2025

KEYWORDS

Ko'p doriga chidamli sil, MDR-TB, o'pka sili, qo'shma kasalliklar, qandli diabet, OIV, surunkali obstruktiv

ABSTRACT

Ko‘p dori-darmonga chidamli o‘pka tuberkulyozi (MDR-TB), ayniqsa diagnostika va davolashni murakkablashtiradigan qo‘shma kasalliklari bo‘lgan bemorlarda asosiy global sog‘liqni saqlash muammosi bo‘lib qolmoqda. Ushbu tadqiqot qo'shma kasalliklarga chalingan bemorlarda MDR-TBning klinik ko'rinishi, mikrobiologik xususiyatlari va davolash natijalarini o'rganadi. Tasdiqlangan MDR-TB bilan kasallangan 120 nafar bemor kogortasi tahlil qilindi, ulardan 58 nafarida bir yoki bir nechta qo'shma kasalliklar, jumladan qandli diabet, surunkali

o'pka kasalligi, klinik belgilar, mikrobiologik xususiyatlar, davolash natijalari.

obstruktiv o'pka kasalligi (KOAH), OIV infektsiyasi va yurak-qon tomir kasalliklari mavjud edi. Tadqiqot shuni ko'rsatdiki, qo'shma kasalliklar MDR-TBning klinik ko'rinishini o'zgartiradi, bu ko'pincha atipik rentgenologik xususiyatlar va uzoq davom etadigan bakterial turg'unlikka olib keladi. Mikrobiologik tahlillar komorbidiyalari bo'lgan bemorlarda keng qamrovli dori qarshiligi va balg'am konversiyasining kechikish darajasi yuqoriligini aniqladi. Ushbu guruhda davolanish natijalari unchalik qulay emas edi, davolashning muvaffaqiyatsizligi va dori-darmonlarga salbiy ta'sir ko'rsatish darajasi yuqori. Natijalar klinik natijalarni yaxshilash uchun MDR-TB bilan kasallangan bemorlarni davolashda individual davolash strategiyalari va integratsiyalashgan yondashuvlar zarurligini ta'kidlaydi.

Introduction. Multidrug-resistant tuberculosis (MDR-TB) continues to pose a major threat to global health, particularly in settings where comorbid conditions are prevalent. The co-occurrence of MDR-TB with chronic diseases such as diabetes mellitus (DM), HIV infection, chronic obstructive pulmonary disease (COPD), and cardiovascular diseases complicates disease progression, diagnosis, and treatment. According to the World Health Organization (WHO), patients with comorbidities exhibit poorer treatment outcomes and higher mortality rates compared to those without associated diseases.

Understanding the interplay between MDR-TB and comorbidities is essential for improving clinical management and achieving better treatment outcomes. Comorbid conditions can compromise immune function, alter drug pharmacokinetics, and increase the risk of drug toxicity. Moreover, the microbiological characteristics of Mycobacterium tuberculosis strains isolated from these patients may exhibit enhanced drug resistance and virulence.

This study aims to investigate the clinical and microbiological features of MDR-TB in patients with comorbidities and to assess the impact of these factors on treatment outcomes. The ultimate goal is to inform the development of tailored therapeutic strategies for this high-risk patient population.

Materials and Methods

A retrospective cohort study was conducted at the National Tuberculosis Center between January 2021 and December 2023. The study included 120 patients aged 18–75 years with confirmed MDR-TB (resistant to at least isoniazid and rifampicin).

Patients were divided into two groups:

- Group 1: MDR-TB patients without comorbid conditions (n=62)
- Group 2: MDR-TB patients with comorbid conditions (n=58)

Comorbidities included diabetes mellitus (DM), HIV infection, COPD, and cardiovascular diseases. Clinical data were collected from patient medical records, including demographic characteristics, clinical symptoms, radiological findings, microbiological data, and treatment outcomes. Statistical analysis was performed using SPSS v.26.

Results

Patients with comorbidities presented with more severe clinical symptoms and atypical radiological findings. Microbiological analysis showed higher rates of extensive drug resistance and delayed sputum conversion. Treatment outcomes were significantly worse in the comorbid group, with lower cure rates, higher treatment failure, and increased mortality.

Discussion

This study highlights the adverse impact of comorbid conditions on the clinical course and treatment outcomes of MDR-TB. Diabetes mellitus and HIV co-infection significantly affected immune response and treatment outcomes. The findings emphasize the importance of individualized treatment approaches and integrated management strategies for MDR-TB patients with comorbidities.

Conclusion. MDR-TB patients with comorbid conditions experience more severe clinical manifestations, higher rates of drug resistance, and poorer treatment outcomes. Tailored treatment regimens, enhanced clinical monitoring, and integrated care models are essential to optimize outcomes in this vulnerable population.

References:

1. Баласанянц Г.С. Опыт использования бедаквилина в комплексном лечении пациентов с туберкулезом, сочетанным с ВИЧ-инфекцией // Туберкулёз и болезни лёгких. – 2017. – Т. 95, № 9. – С. 49-54. https:// doi.org/10.21292/2075-1230-2017-95-9-49-54
2. Васильева И.А., Стерликов С.А., Тестов В.В., Михайлова Ю.В., Голубев Н.А., Кучерявая Д.А., Гордина А.В., Пономарёв С.Б. Ресурсы и деятель- ность противотуберкулёзных организаций Российской Федерации в 2021–2022 гг. (статистические материалы). М.: РИО ЦНИИОИЗ; 2023. – 92 с.
3. Васильева И.А., Тестов В.В., Стерликов С.А. Эпидемическая ситуа-ция по туберкулезу в годы пандемии COVID-19 – 2020-2021 гг. // Туберкулёз и болезни лёгких. – 2022. – Т. 100, № 3. – С. 6-12. https:// doi.org/10.21292/2075-1 230-2022-100-3-6-12 ВИЧ инфекция у взрослых. Клинические рекомендации. Год утвержде- ния 2020. Возрастная категория: взрослые. Год окончания действия: 2022; 114 с.
4. ВОЗ. Глобальный отчет по туберкулезу за 2023г. Женева:
5. Всемирная организация здравоохранения; 2023г.
6. Ставицкая Н.В., Фелькер И.Г., Жукова Е.М., Тлиф А.И., Докторова Н.П., Кудлай Д.А. Многофакторный анализ результатов примене- ния бедаквилина в терапии МЛУ/ШЛУ-туберкулеза легких // Ту- беркулёз и болезни лёгких. – 2020. – Т. 98, № 7. – С. 56-62. https:// doi.org/10.21292/2075-1230-2020-98-7-56-62
7. Федеральный научно-методический центр по профилак- тике и борьбе со СПИДом ФБУН Центрального НИИ эпи- демиологии Роспотребнадзора. URL: https://www.hivrussia. info/wp-content/uploads/2022/03/Spravka-VICH-v-Rossii-na-31.12.2021-g.. pdf [Дата обращения 07.11.2023 г.]
8. ЮНЭЙДС. Информационный бюллетень 2023. Глобальная стати- стика по ВИЧ. URL: https://www.unaids.org/sites/defauit/files/media_ asset/UNAIDS_FactSheet_ru.pdf [Дата обращения 07.11.2023 г.]

9. Bayowa J.R., Kalyango J.N., Baluku J.B., Katuramu R., Ssendikwanawa E., Zalwango J.F., Akunzirwe R., Nanyonga S.M., Amutuhaire J.S., Muganga R.K., Cherop A. Mortality rate and associated factors among patients co-infected with drug resistant tuberculosis/HIV at Mulago National Referral Hospital, Uganda, a retrospective cohort study // PLOS Glob Public Health. – 2023. – Vol. 3, № 7. – P. e0001020. https://doi.org/10.1371/journal.pgph.0001020

10. Bisson G.P., Bastos M., Campbell J.R., Bang D., Brust J.C., Isaakidis P., Lange C., Menzies D., Migliori G.B., Pape J.W., Palmero D., Baghaei P., Tabarsi P., Viiklepp P., Vilbrun S., Walsh J., Marks S.M. Mortality in adults with multidrug-resistant tuberculosis and HIV by antiretroviral therapy and tuberculosis drug use: an individual patient data meta-analysis // Lancet. – 2020. – Vol. 396, № 10248. – P. 402-411. https:// doi.org/10.1016/S0140-6736(20)31316-7

11. Gandhi N.R., Andrews J.R., Brust J.S., Montreuil R., Weisman D., Heo M., Moll A.P., Friedland G.H., Shah N.S. Riskfactors of mortality among patients with MDR- and XDR-tuberculosis in conditions of high HIV prevalence // International Pulmonary Tuberculosis. – 2012. – Vol. 16, № 1. – P. 90-97. https://doi.org/10.5588/ijted.11.0153

12. Habimana D.S., Ngabonziza J.S., Migambi P., Muzio-Habimana U., Mutembaiire G., Byukusenge F., Habiambere I., Remera E., Mugwaneza P., Mvikarago I.E., Mazarati J.B., Turate I., Nsanzimana S., Dekru T., de Jong K.B. Predictors of mortality from tuberculosis, resistant to rifampicin, among HIV-co-infected patients in Rwanda // Am J Trop Med Hyg. – 2021. – Vol. 105, № 1. – P. 47-53. https://doi.org/10.4269 / ajtmh.20-1361

13. Oelofse S., Esmail A., Deacon A., Konradi F., Olayanju O., Ngubane N., Howell P., Everitt D., Crook A.M., Mendel K.M., Wills G.H., Olugbosi M., Del Parigi A., San E., Calatroni A., Spigelman M., Dheda K. Pretomanid with bedaquiline and linezolid in drug-resistant tuberculosis: comparison of potential cohorts // International Journal of Pulmonary Tuberculosis. – 2021. – Vol. 25, № 6. – P. 453-460. https://doi.org/10.5588/ijtld.21.0035

14. Wu Wu, Zhang Wu, Wang Wu, Wei J., Wang V, Duan V, Tian Wu, Ren M, Li Z., Wang Wu, Zhang T, Wu N., Huang H. Bedaquiline and Linezolid improve the results of TB treatment in patients with drug-resistant tuberculosis with HIV: a systematic review and meta-analysis // Pharmacol Res. – 2022. –№ 182. – P. 106336. https://doi.org/10.1016/ j.phrs.2022.106336

15. Yang Q., Han J., Shen J., Peng X., Zhou L., Yin X. Diagnosis and treatment of tuberculosis