

## СПИСОК ИСПОЛЬЗОВАННОЙ ЛИТЕРАТУРЫ

1. Тапальский, Д. В. Антибактериальная активность покрытий на основе импрегнированного антибиотиками костного цемента в отношении микроорганизмов с различными уровнями антибиотикорезистентности / Д. В. Тапальский, П. А. Волотовский, А. И. Козлова [и др.] // Травматология и ортопедия России. – 2018. – № 4. – С. 105–110.
2. Соколова, Т. Н. Микробные биопленки и способы их обнаружения / Т. Н. Соколова // Журнал ГрГМУ. – 2014. – № 4 (48). – С. 12–15.
3. Ferreira, L. Antibiotics with antibiofilm activity - rifampicin and beyond / L. Ferreira, E. Pos, D. R. Nogueira, F. P. Ferreira, R. Sousa, M. A. Abreu // Frontiers in Microbiology. – 2024. – Vol. 15. – P. 1435720. – DOI: 10.3389/fmicb.2024.1435720.
4. Luo, Y. Mechanism of Antimicrobial Peptides: Antimicrobial, Anti-Inflammatory and Antibiofilm Activities / Y. Luo, Y. Song // International Journal of Molecular Sciences. – 2021. – Vol. 22, № 21. – P. 11401. – DOI: 10.3390/ijms222111401.
5. Murillo, O. The changing epidemiology of bacteraemic osteoarticular infections in the early 21st century / O. Murillo [et al.] // Clinical Microbiology and Infection. – 2015. – Vol. 21, № 3. – P. 1–8. – DOI: 10.1016/j.cmi.2014.09.007.
6. Чувствительность к октенидина дигидрохлориду и другим антисептикам антибиотикорезистентных штаммов микроорганизмов, выделенных от госпитализированных пациентов / Д. В. Тапальский, Е. В. Карпова, Н. Э. Колчанова [и др.] // Новости медико-биологических наук. Микробиология. – 2024. – Т. 24, № 4. – С. 59–65.

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## RESEARCH ABOUT TUBERCULOSIS IN MOROCCO

### **Introduction**

Tuberculosis (TB) is a global public health issue with a high incidence rate, with Asia and Africa being the most affected regions. Chemotherapy is the most effective strategy for preventing TB spread. However, treatment defaulters, who voluntarily interrupt treatment, pose a significant barrier to better results. Adherence to long-course TB treatment is complex and can lead to higher risks of relapse, lower therapeutic successes, multi-resistant strains, and higher death rates.

TB programs face challenges such as delayed treatment presentation and default rates in resource-constrained settings. In Morocco, TB affects 27000 people in 2010, with 82 new cases per 100,000 populations. Treatment guidelines recommend a Category I regimen for new smear-positive cases and a Category II regimen for retreatment cases. Treatment is free and dispensed under medical surveillance in 2600 health centers. The Moroccan government's efforts are reducing TB numbers by 2 to 3% annually.

Treatment default in TB is a significant obstacle, with around 10% of new smear positive cases voluntarily interrupting treatment before the end. Factors influencing treatment default in Morocco include smoking, which is a risk factor for TB infection, disease, and mortality. The study aims to document the impact of smoking and socio demographic factors on adherence to treatment among Moroccan TB patients, aiming to improve treatment completion and compliance.

### **Goal**

Objectives is to investigate the incidence and prevalence of tuberculosis in Morocco.

### **Material and methods of research**

Material and methods of research the analysis of literature sources and generalization of information on this topic.

### ***The results of the research and their discussion***

The study in Morocco measures antituberculosis treatment discontinuation and predictors in a large cohort of patients. The default rate is 30%, similar to Zambia and Nigeria's 29%, but higher than South Ethiopia and Cameroon's 20%. Treatment non-completion is crucial for achieving 85% success, a Millennium Development Goals indicator. Addressing this urgently is essential. The study found that 68% of patients in Morocco defaulted during the continuation phase of treatment, higher than Nigeria (23%), Cameroon (62%), and Kenya (57%). This could be due to feeling better shortly after treatment initiation, which could lead to early medication discontinuation. Adequate patient education and counseling at treatment initiation is crucial. The high default rate may be related to the recruitment procedure of matching non-smokers and smokers, but this is not the case. Gender is the strongest predictor of non-compliance, followed by urban residence and religious practice. Male gender may be less compliant due to economic reasons, as men are the main contributors to family income and cannot afford medical visits. Non-compliance with TB treatment is linked to urban living, as busy clinics may limit education time. Rural residence in Nigeria predicts treatment default in tertiary hospitals due to distance. Religious Muslims are more adherent to treatment than non-religious Muslims, and non-religious Muslims are less likely to adhere to healthy behaviors. Religious faith and compliance to HIV treatments are also linked, with excellent adherence correlated with higher religious belief scores.

The survey has limitations, including potential bias due to combining patients who stopped smoking with those who had never smoked, underreporting of addictive behaviors in Morocco, and limiting the number of women in the cohort. Additionally, the study did not assess the impact of other factors such as HIV status, herbal medication use, knowledge on tuberculosis, and distance from home to clinic. The convenience sample of primary health care units was representative of overall TCU attendance in Morocco.

The study examines the increase in tuberculosis incidence per 100,000 inhabitants in Sidi Kacem from 2011 to 2019 (table 1).

Table 1 – The study examines the increase in tuberculosis incidence per 100,000 inhabitants in Sidi Kacem from 2011 to 2019

Years	ni	Incidence/105
2011	334	69.43
2012	379	77.89
2013	322	95.58
2014	426	85.93
2015	414	82.81
2016	500	98.82
2017	494	98.24
2018	595	103.31
2019	518	98.41

### ***Conclusions***

Morocco faces ongoing challenges in preventing, diagnosing, and treating tuberculosis, especially in light of the COVID-19 pandemic, necessitating continued commitment and targeted interventions for control and elimination.

### **LITERATURE**

1. *Leylabadlo, H. E.* Pulmonary tuberculosis diagnosis: Where we are? / H. E. Leylabadlo, H. S. Kafil, M. Yousefi, M. Aghazadeh, M. Asgharzadeh // *Tuberculosis and Respiratory Diseases*. – 2016. – Vol. 79, № 3. – P. 134–142. – DOI: 10.4046/TRD.2016.79.3.134.

2. World Health Organization. Global Tuberculosis Report 2017. – Geneva : World Health Organization, 2017.
3. Houben, R. M. G. J. The global burden of latent tuberculosis infection: A re-estimation using mathematical modelling / R. M. G. J. Houben, P. J. Dodd // PLOS Medicine. – 2016. – Vol. 13, № 10. – P. e1002152. – DOI: 10.1371/journal.pmed.1002152.
4. World Health Organization. Global Tuberculosis Report 2016. – Geneva : World Health Organization, 2016.
5. World Health Organization. Global Tuberculosis Report 2015. – Geneva : World Health Organization, 2015.
6. Ministère de la Santé au Maroc. Situation de la tuberculose au Maroc. – 2015.
7. Bercion, R. Résistance initiale aux antituberculeux à Yaoundé, Cameroun en 1995 / R. Bercion, C. Kuaban // International Journal of Tuberculosis and Lung Disease. – 1997. – Vol. 1, № 2. – P. 110–114.
8. Haddad, M. B. Simple estimates for local prevalence of latent tuberculosis infection, United States, 2011–2015 / M. B. Haddad, K. M. Raz, T. L. Lash [et al.] // Emerging Infectious Diseases. – 2018. – Vol. 24, № 10. – P. 1930–1933.
9. Daftary, A. To end TB, first-ever high-level meeting on tuberculosis must address stigma / A. Daftary, E. M. H. Mitchell, M. J. A. Reid, E. Fekadu, E. Goosby // American Journal of Tropical Medicine and Hygiene. – 2018. – Vol. 99, № 5. – P. 1114–1116.
10. Bakhat, G. Bilan épidémiologique de la tuberculose à Larache entre 2005 et 2008 : дис. / G. Bakhat. – 2010.
11. Ossalé Abacka, K. B. Tuberculose extrapulmonaire versus tuberculose pulmonaire: aspects épidémiologiques, diagnostiques et évolutifs / K. B. Ossalé Abacka, A. Koné, O. Akoliekoya, R. G. Bopaka, H. Lankoandésiri, K. Horo // Revue de Pneumologie Clinique. – 2018. – Vol. 74, № 6. – P. 452–457. – DOI: 10.1016/j.pneumo.2018.09.008.
12. Estifanos Biru, S. Determinants of treatment adherence among smear-positive pulmonary tuberculosis patients in Southern Ethiopia / S. Estifanos Biru, L. Bernt // PLOS Medicine. – 2007. – Vol. 4, № 2. – P. e37. – DOI: 10.1371/journal.pmed.0040037.
13. Pefura Yone, E. W. Incidence, time and determinants of tuberculosis treatment default in Yaounde, Cameroon: A retrospective hospital register-based cohort study / E. W. Pefura Yone, A. P. Kengne, C. Kuaban // BMJ Open. – 2011. – Vol. 1. – DOI: 10.1136/bmjopen-2011-000289.
14. World Health Organization. Treatment of tuberculosis: Guidelines for national programmes. – Geneva : World Health Organization, 1993.

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## **THE INTERSECTION OF VIRAL INFECTIONS AND CARDIAC INFARCTION**

### ***Introduction***

Viral infections have been implicated in cardiovascular complications, including cardiac infarction. This comparative analysis explores the associations between COVID-19, Cytomegalovirus (CMV), Influenza, and Human Immunodeficiency Virus (HIV) in the context of cardiac health. Understanding these relationships can provide insights into the mechanisms by which viral infections may contribute to cardiac events.

### ***Goal***

The primary goal of this study is to analyze the intersection of viral infections and cardiac infarction, examining the pathophysiological mechanisms, prevalence, and outcomes associated with COVID-19, CMV, Influenza, and HIV. A Comparative Analysis of COVID-19, CMV, Influenza, and HIV.

### ***Material and methods of research***

A literature review was conducted, focusing on peer-reviewed articles published between 2013 and 2023. Key databases such as PubMed, Scopus, and Google Scholar were utilized to identify relevant studies. Data on the incidence of cardiac infarction in patients with these viral infections were extracted and compared. Additionally, the analysis included the immune response mechanisms and inflammatory pathways activated by each virus.