

MYCOBACTERIUM LEPRAE: EPIDEMIOLOGY, ETIOLOGY AND PATHOMORPHOLOGY

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ANNOTATION-----

In this article we will discuss about Mycobacterium Leprae, difference between Lepromatous Leprosy and Tuberculoid Leprosy and complications of therapy and other details.-----

INTRODUCTION

Leprosy is a chronic progressive disease of man. Lepra bacilli prefer lower temperature, therefore they localize in superficial cooler tissue, i.e. skin, ears, nasal mucosa and peripheral nerves, lungs, liver, testes, eyes and bones are also affected.

The incubation period is 3-15 years. Nasal discharge and skin lesion are the sources of infection. Lepra bacilli enter through damaged skin, cut, wound and nasal mucosa. The transmission of the disease is mostly by prolonged contact with infective patients.

Schwann nerve cell is the target for these bacilli; thereby the nerve is damaged and ultimate manifestations of Leprosy are anesthesia and muscle paralysis. Visible lesions are due to infiltration of *M. leprae* into skin and cutaneous nerve. The first sign of Leprosy that heals spontaneously is a non-specific or inflammatory or indeterminate skin lesion.

THE AIM OF THE STUDY

To study the epidemiological features of endemic outbreaks of leprosy in the Khorezm region.

RESEARCH RESULTS

As in the entire former Soviet Union, the identification and hospitalization of patients with leprosy in the current Khorezm region began in the 1930s on the basis of a special resolution of the People's Commissariat. The identified patients were isolated and placed in leper colony. But, unfortunately, in the first years of the detection of this disease, local doctors could not correctly diagnose, and as a result, patients with various dermatoses, including leprosy (vitiligo), were mistakenly hospitalized. Since there was no specific treatment for the disease, the only method was isolation of patients, that is, keeping them in captivity for many years. There has never been a specialized hospital for patients with leprosy on the territory of the region. During the tsarist Russia (1873-1916) and after the revolution (1917-1930), the first patients with leprosy were treated in the suburbs of Tashkent, then in 1931 - in the Bakhmal district of the Jizzakh region (formerly Bulungur district of the Samarkand region) and in 1933 for leprosy were treated in the Republic of Karakalpakstan (the leper colony is located in the village of Krantov, Nukus district).

Over the next five years (1935-39), an expedition of specialists began to conduct medical examinations of a certain part of the region's population and at the same time train local personnel. As a result of the organizational work, 29 new patients were registered. The main patients were identified in Urgench, Urgench district (9), Mangitsky (5), Shavat (5) and Gurlan (3) districts. Later, new patients were identified in the Khazarasp and Koshkupir districts (3).

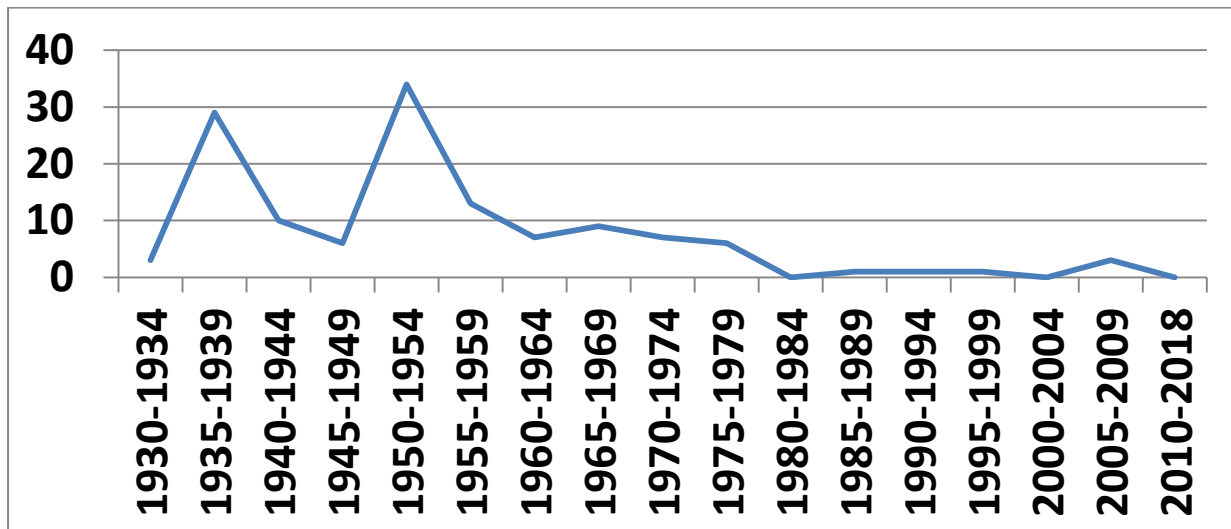


Figure 1. Graph of the Annual Incidence of leprosy in the Khorezm region.

During the war years (1941-45) and in the post-war period (1945-49), for obvious reasons, organizational work slowed down somewhat, and with the help of local doctors and expedition staff, only 16 new patients were identified. In the 50s and 59s of the twentieth century, the number of patients in the Khorezm region increased, as did the number of patients around the world, and amounted to 47 (37.0%) of the total number of patients diagnosed in those years. According to N.D. Kadantsev (4), from 1921 to 1970, in the entire Khorezm oasis (the Republic of Karakalpakstan, the border regions of the Republic of Turkmenistan and the Khorezm region) 4060 cases of leprosy were detected with an annual incidence of 23.56 people. This amounted to 5.0 per 10,000 population. Our research shows that the incidence of leprosy in the Khorezm region has decreased due to preventive measures taken before the 1960s. During the same period, the incidence of leprosy in neighboring Karakalpakstan was 30.40 per 100,000 population, and in the northern part (Moinak district) - 186.66 (1). However, the search and isolation of patients was only one of the aspects of the problem, and only in the 50-60s, the introduction of sulfone drugs significantly reduced the incidence of leprosy, both throughout the republic and in the Khorezm region. After another 30-40 years, the epidemiological process of the incidence of leprosy in the Khorezm region began to change. New patients were registered first in the Khazaraspsky district (1993), then in the Koshkupirsky (1997), then again in the Khazaraspsky (2006), Yangiarik (2007) and again in the Koshkupirsky (2007). The number of those who were in household contact with patients also sharply increased. Unfortunately, all 5 identified patients had a severe clinical manifestation of the disease - infection with the lepromatous type. All of them were diagnosed on average seven to eight years after the illness. These data show that there are still significant gaps in this area. There are unresolved issues in clinical diagnosis. Indeed, this situation requires a comprehensive study of the epidemiological process in the region, as well as retrospective studies.

As already noted, the total number of identified patients in the region from 1930 to 2018 was 130, of which 88 (67.7%) were men and 42 (32.3%) were women, which amounted to a sex ratio of 2.1: 1. 0. In general, the fact that there are two times more male patients than women in the region is confirmed by the data of a number of other authors (2). In the countries of Central Asia, based on national customs and traditions, women are often engaged in housework, that is, they are housewives, and are less involved in external communication. On the contrary, most men work outside the home and interact with different people on a daily basis. In fact, men are at a higher risk of contracting infection from the outside than women, although this may also be due to consistent occupational activities. For example, fishermen spend a long time in a boat at sea while fishing, and shepherds also, mostly men, live together in wide pastures, meadows, etc. In addition, alcohol abuse, cigarette smoking and nasal smoking, mainly , prevails in men. Working in cold, windy, rainy places sometimes leads men to a weak state of the body. The climatic environment can reduce the reactivity of the macroorganism (of course, in connection with social conditions). The climate in the Khorezm region is highly variable: it is very cold in winter and very hot in summer.

In foreign and domestic literature, there have been many assumptions about the genetic predisposition of people with leprosy. Our compatriot Academician Ch. A. Abdirov and co-authors (1) reported that the Karakalpaks and Kazakhs are more likely to get sick than representatives of other nationalities living in the area.

Similar views were expressed by Professor A. Yushchenko regarding the Kalmyks, Nanais and Mongols. (five). Our research in this regard also gave the necessary results for the prognosis of diseases. The table shows that in the Khorezm region, 17.7% of patients were Karakalpaks, 12.3% were Kazakhs, 2.3% were Turkmens, 1.5% were Tatars, 3.1% were Iranians, one each (0.8 %) - Azerbaijanis and Koreans, as well as representatives of the local population, that is, Uzbeks, accounted for 61.5%. In fact, if you add up the mixed representatives of other nationalities, their share is 37.8%, which is, of course, a very high figure. This means that some of the patients came from other countries in connection with migration. Ancient Urgench is the center of a very large trade route, along which there has always been a large movement of people. It is known from history that the Amu Darya (Dzhaikhundarya) changed its course many times over the centuries, as a result of which the peoples living on both banks of the river were forced to change their place of residence as nomads. Residents of the northern part of the Republic of Karakalpakstan were forced to move to fertile soils. But, of course, all of this applies to the general population. It should be noted that most patients with leprosy, after undergoing outpatient treatment with leprosy, at some point tried to leave their homes, especially if they were single and did not have a wife. It is known from history that during the reign of Khorezmshah, ministers of various professions were forcibly brought to Khorezm from Iran. Some of them have already been localized as the local population. The same is with the Turkmens. Tatars, Azerbaijanis and Koreans arrived because of migration. It is safe to say that they were already infected with leprosy and moved to the Khorezm region. We explain this situation as follows. During the great Soviet repressions of 1938-1940, Koreans were forcibly resettled from the Far Eastern regions of Russia, and Tatars from Crimea. At that time, on the banks of the Amur, where Koreans lived, there were many patients with leprosy. More than 150,000 patients were listed in neighboring Korea alone. In the Karabakh region of Azerbaijan, outbreaks of leprosy are still observed. Thus, the analysis of patients by origin and ethnicity showed that the role of migration, conditioned by state policy, in the occurrence of endemic outbreaks of leprosy in the territory of the Khorezm region was also significant.

Table 2 presents an analysis of the clinical diagnosis of patients. It shows that 78.5% (102 cases) of patients were diagnosed with lepromatosis, 13.8% were undifferentiated and, finally, 7.7% were diagnosed with tuberculosis.

Table 2
Analysis of the clinical diagnosis

	Clinical diagnosis	Abs	%
1.	Type of lepromatosis	102	78,5
2.	Tuberculoid type	10	7,7
3.	Undifferentiated type	18	13,8
	Total:	130	100,0

Clinicians and epidemiologists know that the lepromatous type of leprosy is extremely dangerous both epidemiologically and clinically, but in patients in the Khorezm region, the diagnosis was made much later. Of 130 patients, 102 (78.5%) were of the lepromatous type. The question arises why, with such an indicator, the incidence rate in the region did not increase so much. The answer is that almost all of the patients (100%) were kept in captivity and treated forcibly for leprosy for many years. Some died prematurely. The rest came from outside due to migration. Most importantly, most of the previously identified patients had relatively few household contacts. It should also be noted that some patients did not return home due to leprosy. They lived in those places for the rest of their lives. In this regard, their everyday contact with strangers ceased. Thus, as a result of our research, we came to the following conclusion: neighboring Karakalpakstan, which is indeed endemic for leprosy, had an effect on patients, since some patients arrived or fled from these places. In addition, patients from endemic foci of the Republic of Kazakhstan and the Republic of Turkmenistan arrived as a result of migration. Studies based on the clinical diagnosis of the disease showed that 78.5% of the total number of patients were of the lepromatous type. Most of them were forcibly captured and kept in captivity in leper colony. They were then treated with sulfone drugs. Initially, the number of patients' household contacts was relatively small. Most of the patients remained sick with leprosy for a long time, because they were disabled and, having disappeared without a trace, did not return home.

CONCLUSION

By the end of the twentieth century, control over endemic foci and patient identification declined sharply. The main flaws in the diagnosis were errors. Household contacts of elderly patients on the register were

completely ignored. As a result, patients from the Khazarasp, Koshkupir and Yangiarik districts of the region were registered.

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