MOLECULAR SIGNIFIERS IN SYPHILITIC INFECTION AND THEIR ROLE IN MORBIDITY RATES

Toshev SU

Samarkand State Medical University Department of Skin and Venereal

Yusupov MS

Samarkand State Medical University student

Abdullaev DM

Samarkand State Medical University Department of Skin and Venereal

Abdullaev XD

Samarkand State Medical University Department of Skin and Venereal

Samarkand regional branch of the Republican Specialized Dermatovenerological and Cosmetology Scientific and Practical Medical Center/ Samarkand State Medical University

Axmedova MM

Department of Family and Preventive Medicine,

Faculty of Postgraduate Education (FPPE)

Annotation: *in this article, an attempt was made to reveal the main reasons for the development of a method for indicating molecular markers of organ lesions in syphilitic infection based on the chromato-mass spectrometric analysis of biological fluids and tissues of the body of a patient with syphilis. To carry out scientific work, the author conducted a study of biological material (blood, cerebrospinal fluid, urine) obtained from 152 patients with syphilis aged 15 to 60 years (men 45.5 women - 55.5%)*

using GC-MS analysis methods. The problem in question is still little studied, therefore, requires more thorough research.

Key words: *molecular markers, syphilitic infection, spectrometric analysis.*

Introduction: There has been an increase in the number of sexually transmitted infections (STIs) worldwide. Among all STIs, syphilis is the most significant. According to the bodies of Rospotrebnadzor, the incidence of syphilis in 2001 amounted to 240 thousand cases in the Russian Federation. The epidemiological situation in the country remains extremely tense. Of particular concern is the increase in the number of latent forms of syphilis and, as a result, the increase in the frequency of cases of syphilitic lesions of the nervous system and internal organs. Early latent syphilis began to be registered much more often than late and unaccounted for and accounts for up to 60-96% of all patients with a latent form of syphilis. The proportion of early latent syphilis in the Russian Federation increased from 1997 to 2007 by 1.2 times. The frequency of registration of late latent syphilis decreased by 6 times.

The problem of early diagnosis of syphilis and its organ lesions has always been acute, since in most cases the syphilitic process in the central nervous system is asymptomatic and does not have clear clinical signs.

Medicine of the 21st century is molecular medicine. The main postulate of molecular medicine is the position that for each disease, each pathological manifestation of the body, there is a molecular target that can be used both for diagnosing a disease and for medicinal effects. The use of modern technical and instrumental developments significantly expands the possibilities of molecular diagnostics. Methods of molecular diagnostics and prediction of the course of syphilitic infection based on modern technologies and, in particular, gas chromatography and mass spectrometry (GC-MS) of biological material from patients with syphilis can solve complex problems of diagnosing latent forms of syphilis and its organ lesions.

Aim: was to develop a method for indicating molecular markers of organ lesions in syphilitic infection based on chromatomass spectrometric analysis of biological fluids and tissues of the body of a patient with syphilis.

Materials and methods. Biological material (blood, cerebrospinal fluid, urine) obtained from 152 patients with syphilis aged 15 to 60 years (men 45.5 women - 55.5%) was studied using GC-MS methods. Figure 1.

Results and discussion: GC-MS analysis of peripheral blood was performed in 145 patients, GC-MS analysis of urine — in 72 patients, GC-MS analysis of cerebrospinal fluid — in 17 patients. Out of 152 patients, positive serological tests (RPHA, RP, RIF, ELISA) were found in 121 patients, negative — in 31 patients. Figure 2

Lesions of the nervous system (neurosyphilis) were detected in 17 patients (11.2%); lesions of the genitourinary system (cystitis, urethritis, pyelonephritis) - in 16 patients (10.5%); lesions of the skin and mucous membranes - in 25 patients (16.3%). Rice. 3.

As a control of chromatographic research methods, the chromatographic characteristics of biological fluids were studied in other pathological conditions: surgical sepsis (27 patients), tuberculosis (21 patients), liver echinococcosis (15 patients).

The diagnostic capabilities of GC-MS analysis were used in three areas: 1) analysis of biochemical changes in metabolism in the blood serum of patients with the determination of lipid, carbohydrate and amino acid components; 2) indication of molecular markers of organ damage, in particular, markers of damage to the nervous system (brain), kidneys and integument; 3) indication of signal compounds for the implementation of "cooperative sensitivity" by microbes - lactones, quinolones and furan esters of boron.

During the study, molecular markers of organ lesions (CNS, kidneys, skin and mucous membranes) in syphilis were determined. It has been shown that the information content of GC-MS studies of molecular markers of organ lesions is higher

compared to the generally accepted clinical and laboratory indicators of syphilis. For the first time, a comparative analysis of the chromatographic characteristics of biological fluids in patients with syphilis and patients with other infectious and parasitic pathologies (tuberculosis, surgical sepsis, echinococcosis, etc.) was carried out. The result of the study was the development of "Method for laboratory diagnosis of changes in the central nervous system in syphilis" and "Method for laboratory diagnosis of infectious pathology of the kidneys in syphilis"

Conclusions: The developed criteria for GC-MS indication of molecular markers of organ lesions have a high level of diagnostic sensitivity, diagnostic specificity, positive and negative diagnostic predictability and can be used as laboratory diagnostic criteria for syphilis.

Figure -1 Distribution of patients according to anthropometric data.

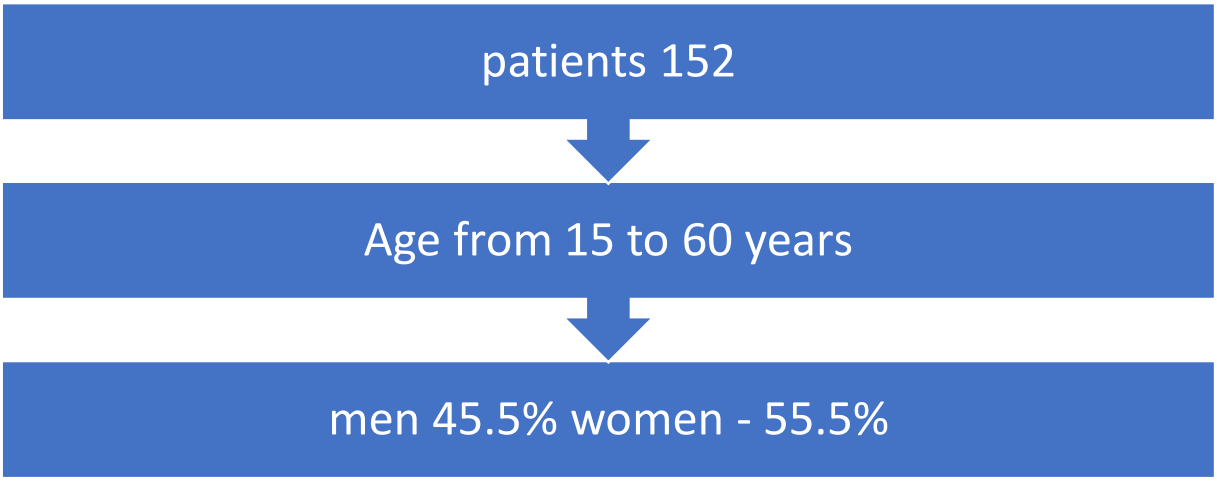


Figure -2 Distribution of patients by the number of laboratory tests performed.

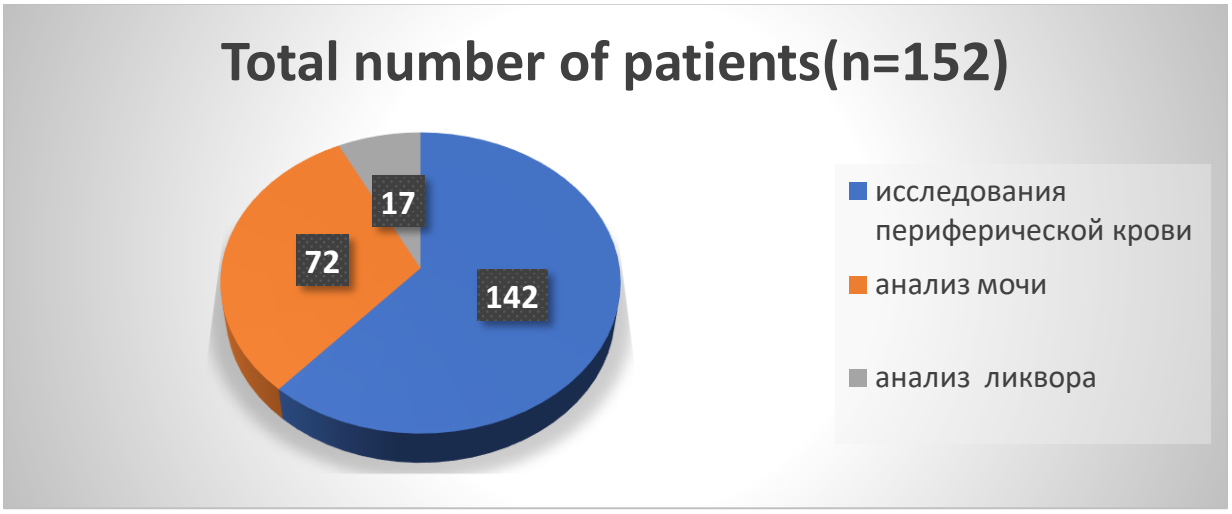
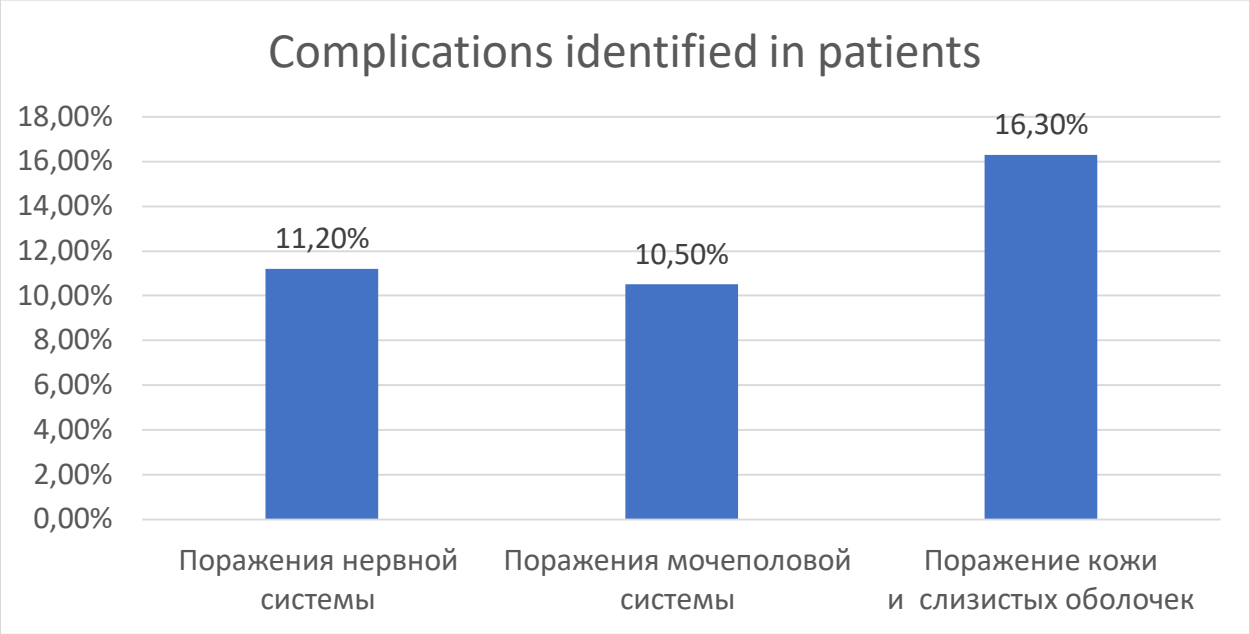


Figure -3 Distribution of patients by identified complications.



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