Perspectives of creation the prototype multi-functional diagnostical expert system

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Abstract - **In this paper the preconditions for the the development of multifunctional diagnostic expert system are given.**

Keywords - **Expert systems, Diagnostic system, Electrophysiological parameters, Index of health.**

I. Introduction

In the process of decision making in medicine great importance is attached application of computer technology, which is a difficult task. This is due to the lack of standardization in terminology, formats for data logging, measurement scales, not developed, flexible and comfortable for using computer methods of machine representation of medical knowledges, and formalization of the decision making process.

Expert systems are one of the most common types the systems of artificial intelligence. They were developed as Research scientific instrumental means of the the 1960s and were seen as a special type of artificial intelligence designed for the effective resolution complicated tasks in a narrow subject area, such as a medical diagnosis of diseases [1, 2]. The most widespread expert systems in various areas of human activity began in the early 80-ies of XX century.

To date, scientists are searching diagnostic systems that will significantly speed up and simplify the work of doctor [1].

II. Problem Analysis

Leading place in the medical process belongs diagnostic advisory system, which shall consist of reference and diagnostic systems and medical diagnostics advisory system. Unifying by the computer system may be automated workplace health worker. An important software product that needs to develop, a computer expert system of medicine. It should cover medical standards, knowledge base and computer intellectual system. It is necessary also construction a mathematical model of the health index.

Several classical expert systems currently used in medicine. «MYCIN» - diagnostic systemin particular is designed for use in the diagnosis and treatment of blood infection and medical infections.

The more improved system has become «NEOMYCIN», where the focus appeared those knowledge used by doctors practice in a routine diagnostic procedure [3]. «EMYCIN» - domain-independent version of «MYCIN», but without a specific medical knowledge base. «PUFF» - a system that diagnose pulmonary diseases, interpreting data measuring pulmonary function [3].

Researchers from the University of Pittsburgh in the 1970s, Harry Pipl and Jack Myers have developed a system «INTERNIST-I» (of the 1980's INTERNIST-I/QMR) [4]. With the help of large-scale differential diagnosis is performed, a result of which is put a diagnosis.

Most of these expert systems designed for nosological disease forms. Modern medical practice requires the application expert systems in instrumental diagnostic methods to assess the condition of the organism at an early stage of the disease or at the stage of functional disorders [3].

III. Conclusion

Known is the fact that the evaluation of the functional state of the organism is required analysis and monitoring of electrophysiological parameters. Because scientists, under present conditions, actively developed and implemented automated systems for diagnosis and monitoring of electrophysiological signals.

So promising is the creation of an automated system that would unite physiological parameters such as heart rate variability, the voice signal and electroretino signals more.

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