Abstract
Starting from the probability theory and dynamic systems, a novel methodology of diagnostic aid for the Holter test was developed previously, based on the probability theory. The aim of this paper is to assess its diagnostic concordance in normal and acutely ill cases. Fifteen normal Holter tests and 100 with different cardiac pathologies from patients older than 20 years were taken. Cardiac rates ranges and number of beats per hour were determined and the probability of theses ranges was estimated. The obtained values were analyzed according to the diagnostic parameters established in the previously developed methodology in order to differentiate the normal status from the disease. Finally, sensitivity, specificity and Kappa coefficient of the physical mathematical evaluation with regard to the conventional diagnosis for normal and acutely ill cases were assessed. The Holter tests with acute disease showed between 6 and 13 ranges of frequencies, and the normal ones between 13 and 21 ranges. The maximum probability of beats per hour in normality presented four cases with probability less then or equal to 0.217 or higher than or equal to 0.304, while for acute disease all had values higher than or equal to 0.304. From among the Holter tests, 5 with acute disease and 2 normal presented a number of beats lower than 3.000. The sum of probabilities of the most probable frequencies was between 0.203 and 0.379 for the normal ones and between 0.333 and 0.652 for the Holter tests with acute pathologies. Sensitivity and specificity values were 100% and 73.3%, and the Kappa coefficient 0.86. It was confirmed that the methodology developed based on the probability theory reveals an autoorganization of the cardiac system which allows to differentiate between normality and acute disease and to evidence the evolution between both at the clinical level.

Keywords
Holter test, probability, diagnostic aid.