RELIABILITY OF COMPLEX ULTRASONOGRAPHY CRITERIA OF LIVER AND KIDNEY INVOLVEMENT FOR GOUT DIAGNOSIS EVALUATED BY NOVEL MATHEMATICAL MODEL

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We suggested novel mathematical model for conjoin multiparameter assessment of the gout processing as a complex system described by primary parameters (US and laboratory criteria) as stochastic in nature and solving the "best" parameters by special algorithm. According to the aim of the study to improve the quality of gout diagnosis by means of development and evaluation by novel mathematical model specific markers of involvement of kidney and liver in 42 patients with gout and 34 controls gray scale, Doppler and sonoelastography parameters of liver and kidneys were recorded and evaluated by Fisher angular coefficient φ, Pearson correlation coefficient for statistics and assessed with suggested model. Integrated index (Y) rated between 0/1 for disease description and staging was calculated. The sensitivity, specificity, positive and negative predictive value and accuracy the gout involvement of liver and kidneys using complex ultrasonography diagnostic criteria were 92,6%, 84,4%, 80%, 95%, and 91,9% respectively. Integrated index Y could be reliable for disease staging and control treatment follow up and for performing personalized treatment.