[gw22-e0394]

ASSESSMENT OF CLINICAL VALUE IN AORTIC REGURGITATION PATIENTS WITH HEART FAILURE USING MATHEMATICAL MODEL

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Objective We applied mathematical model of SPSS to screening indices of left ventricular geometry and left ventricular twist in aortic regurgitation (AR) patients with heart failure.

Methods 24 AR patients with heart failure and 30 healthy volunteers were selected. The parameters of left ventricular geometry and left ventricular twist were obtained. Logistic Stepwise regression analyses and ROC curve were established.

Result In Logistic regression model, left ventricular twist of independent variables of PTWtwist (peak twist) and AVCtwist (twist at aortic valve closure) were selected into the Logistic regression equation in stages, the expression of equation were 88.89% and 94.44%, respectively. Left geometry of independent variables of (2D1/Ld), SId and ((D1+D2+D3)/3Ld) were selected into the Logistic regression equation in stages, the expression of equation were 81.48%, 85.19% and 85.19%, respectively. The area of under the ROC curve corresponded to rotation AP, rotating MV, PTWtwist, AVCtwist, MVOtwist, SIs, SId, ((D1+D2+D3)/3Ld), ((D1+D2+D3)/3Ls), 2D1/Ld, 2D1/Ls, LSd/Apd, LSs/Aps were 0.790, 0.126, 0.946, 0.899, 0.924, 0.507, 0.876, 0.675, 0.503, 0.894, 0.613, 0.689 and 0.580, respectively ($p < 0.05$).

Conclusions In logistic regression model, the greatest classification capability of independent variables was PTWtwist and (2D1/Ld). , To evaluate the left ventricular rotation and twist parameters with ROC curve, the indicator of PTWtwists and SId showed perfect accuracy of all the groups.