Early Detection of Vasovagal Syncope in Tilt-up Test with Hemodynamic and Autonomic Study

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Syncope is a common disorder. The diagnosis of vasovagal syncope is according to history, tilt table test and blood pressure change with postural stress. The doctor use pharmacy to slow time of study has high sensitivity and false positive. We collected 30 patients below 55 years-old, received tilt table test without pharmacy challenge in Tri-service general hospital from 2005 to 2010. We selected 30 negative exam patients as compared group. Due to this disorder is the heterogeneity, multiple factor. The pathophysological pathway was not fully understood. The our compared study showed lower weight, body mass index, baseline mean blood pressure, presyncopal rapid heart rate, higher low frequency/high frequency ratio, lower baroreflex sensitivity and total peripheral resistance, then lower mean blood pressure and heart rate in syncopal period. We used logistic regression and neural network to evaluate age, gender, height, weight, body mass index, and mean blood pressure, heart rate, heart rate variability ratio, blood pressure variability ratio, baroreflex sensitivity, stroke volume index, cardiac index, total peripheral resistance index, left ventricular work index, end-diastolic index, left ventricular ejection time during baseline and first 3 minutes,5 minutes tilt table test to early detect vasovagal syncope with tilt table test. We found using parameters of baseline heart rate, body mass index and mean blood pressure, cardiac index, left ventricular work index during 3minutes of tilt up for neural network model, the model revealed good train and test performance (accuracy:95.5%) and good sensitivity and specificity (sensitivity:93%;specificity:96%; AUROC:0.979).