

中文題目：迷走神經性昏厥病人具高皮膚交感神經活性

英文題目：High Skin Sympathetic Nerve Activity in Patients With Vasovagal Syncope

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Introduction: The mechanism of vasovagal syncope may be related to imbalance of sympathetic and parasympathetic tone,¹ and heart rate variability (HRV) have been used during head-up tilt test (HUT) to analyzed the relation between autonomic nervous system(ANS) and vasovagal syncope.² neuECG is a new method of recording and analyzing ECG signals to estimate sympathetic tone in human,³ and it is more effective than HRV in estimating the sympathetic tone.⁴ neuECG uses equipment with high sampling rate and wide bandwidth to record electrical signals from the skin, then bandpass filters the signals between 500 Hz and 1000 Hz to display skin sympathetic nerve activity (SKNA) and bandpass filters the same signals between 0.5 Hz and 150 Hz to display ECG.

We hypothesize that SKNA is higher in subjects with vasovagal syncope than control.

Methods: We recorded neuECG in 27 subjects who suffered from recurrent syncope and received HUT. The subjects were tilted according to the “Italian protocol”. In brief, the test was divided into four phases with rest phase for 10 min, passive phase with the tilt at 70 degrees for 20 min, provocation phase with sublingual nitroglycerin 300 µg at 70 degrees for 20 min and recovery phase after lying down for 5 min. The recordings were made with conventional ECG electrodes in Lead I configuration. Data were analyzed to determine the average SKNA (aSKNA, in µV) per digitized sample during four phases of the head-up tilt test.

Results: Nine of 27 (33%) subjects developed syncope and all the syncope was induced by provocation. The aSKNA at rest and provocation phases, respectively, were 1.295 ± 0.199 and 1.544 ± 0.365 in the tilt-positive group, which were significantly higher than 0.972 ± 0.226 ($p = 0.001$) and 1.243 ± 0.338 ($p=0.044$), respectively, in the tilt-negative group. The pre- and post- nitroglycerin aSKNA is higher in positive than negative group 3 mins after nitroglycerin ($p= 0.036$). The aSKNA 30 s before syncope was higher than the rest phase, suggesting SKNA surge

prior to syncope. ($p = 0.034$).

Conclusion: As compared with negative groups, subjects with positive head-up tilt had increased SKNA at rest and provocation phases. The surge of SKNA 30 s before the tilting induced syncope was also noted.

References:

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