Autonomic Test by EZSCAN in the Screening for Prediabetes and Diabetes

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Abstract

Background: Autonomic neuropathy is common in diabetics and may occur in prediabetes. A new and non invasive Autonomic test-EZSCAN evaluates sudomotor function precisely. No generally accepted EZSCAN thresholds to screen for Prediabetes and diabetes have been defined.

Methodology and Principal Findings: Cross-sectional study of 5,824 Chinese adults aged 40 and older was conducted in Shanghai, China. We used EZSCAN to evaluate autonomic function in different glucose status and screen for prediabetes and diabetes. The prevalence of prediabetes and diabetes were 21.9% and 17.5% respectively. Compared with the lowest quintile, the highest quintile of EZSCAN value had odds ratios for having dysglycemia (prediabetes or diabetes) of 2.08 (95% Cl 1.67–2.58) in total population, 2.89 (95%CI 2.06–4.05) in men and 1.70(95%CI 1.28–2.25) in women after adjustment for Confounding factors. EZSCAN value improved the areas under ROC curve for detection of dysglycemia or diabetes beyond the contribution of conventional risk factors by 0.8% and 12.9%. The cut-off point of EZSCAN value higher than 30% provided reasonable sensitivities (70.3–83.7%) to detect dysglycemia not only in total population regardless of sex but also in individuals with high risk of developing diabetes.

Conclusions and Significance: EZSCAN value higher than 30% indicate an increased risk of prevalent prediabetes and diabetes, suggesting that subjects with EZSCAN ≥30% should be further evaluated by oral glucose tolerance test. The improvement of EZSCAN for diabetes detection was still of limited clinical relevance. Thus the clinical application value of EZSCAN is needed to be explored in future studies.