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The Impact of different anthropometric measures in cardiovascular autonomic function in men and women diabetic population in Greece.

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Background and aims: Detecting and measuring autonomic dysfunction in diabetic patients may identify those with a higher risk of developing late complications of diabetes. Diminished heart rate variability (HRV) is associated with an increased risk of coronary heart disease and death. Early sub clinical detection of CAN for risk stratification and intervention for preventing the potentially serious consequences of CAN especially in people with diabetes is of prime importance. The non-invasive Ewing test battery specifically designed for identifying CAN consists of five tests. According to test results CAN is classified as mild, moderate or severe. Some studies have shown that CAN is associated with age, glycemic control and BMI. The aim of this study was to investigate the relationship between BMI and CAN.

Materials and method 122 diabetic patients, 64 male with mean age 62 ± 3 and 58 female mean age 65 ± 2 years old from the outpatient clinic of diabetic foot were enrolled. Anthropometric measurements and four of the five of Ewing test for CAN were performed in all patients. Cardiovascular autonomic function was estimated with Ewing's test using a chest belt connected with a computer (software for CAN analysis). The following parameters were calculated: Valsalva Ratio (Patient blows into a mouthpiece at a pressure of 40 mmHg for 15 sec.), the ratio of the longest R-R interval after the maneuver to the shortest R-R interval, 30:15 ratio (Heart rate response to standing up is the ratio of the longest R-R interval around the 30th beat to the shortest R-R interval around the 15th beat), heart rate response to deep breathing (E:I ratio), blood pressure response to standing up. Data were checked for normality and analysed with SPSS15.0 statistical software. Chi-square test was performed and the level of statistical significant was defined as $p < 0.05$. Evaluation of CAN according Ewing was classified as: normal: all tests normal or one borderline, early CAN :1 abnormal or 2 borderline, definite CAN: 2 or more abnormal and severe CAN: at least 2 abnormal and 2 or both of the BP tests abnormal or both borderline Blood pressure response to standing: normal fall for systolic blood pressure is normally < 20 mmHg. **Results:** In Men were found 12 persons with mean BMI=17 and Normal CAN evaluation, 15 with mean BMI=24 and early CAN, 24 with mean BMI=28 and definite CAN, 13 with mean BMI>30 and severe CAN. In Women 16 persons with mean BMI=18 and Normal CAN evaluation, 19 with mean BMI=23 and Normal CAN evaluation, 17 with mean BMI=27 and early CAN and 6 with mean BMI>30 and definite CAN. There is a strong positive correlation ($r=0.76, p<0.035$) between BMI and CAN in men population. In women a positive correlation ($r=0.66, p<0.04$) was also detected between BMI and CAN but is not presenting as linear as it is in men. **Conclusion:** So BMI it could be considered as one of the factors that affects CAN manifestation and stratification and maybe it can be used as a prevention tool for early risk stratification and intervention for preventing the potentially serious consequences of CAN in diabetic patients.