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Central adiposity and decreased heart rate variability in postmenopause: a cross-sectional study.

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Author information

Abstract

OBJECTIVE: To investigate the impact of waist circumference (WC) on heart rate variability in 87 apparently healthy, postmenopausal women.

METHODS: In this cross-sectional study, time- and frequency-domain heart rate variability indices were determined at rest and during sympathetic stimulation with mental stress. Patients were stratified according to WC \geq or $<$ 88 cm. The mean (\pm standard deviation) age was 55 ± 5 years. The median time since menopause was 6 (range 1-22) years. Age and time since menopause were similar.

RESULTS: The mean body mass index was 27.12 ± 4.49 kg/m². Metabolic syndrome was diagnosed in 26 (29.5%) participants. Thirty-eight participants (43.6%) had hypertension. Women with WC \geq 88 cm had higher body mass index, glucose and insulin (both fasting and after a 75-g oral glucose tolerance test), HOMA, triglycerides, and free androgen index ($p < 0.05$). The metabolic syndrome was more frequent in women with WC \geq 88 cm (24.13% vs. 5.74%; $p < 0.01$). At rest, women with WC \geq 88 cm presented lower vagal modulation, expressed by a reduction in the mean of all normal RR intervals (mean RR) ($p < 0.01$) and root mean square of successive differences of adjacent RR intervals (rMSSD) ($p < 0.05$) than women with WC $<$ 88 cm. Mental stress significantly increased sympathetic modulation in both groups, expressed by reduction in high frequency (HF), increase in low frequency (LF) and LF/F ratio, and reduction in mean RR and rMSSD.

CONCLUSIONS: Less favorable metabolic profile and lower cardiac vagal modulation with preserved sympathetic responsiveness were found in participants with WC \geq 88 cm, suggesting that central adiposity may be associated with decreased heart rate variability in apparently healthy, postmenopausal women.

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