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Conference Abstract

YI 2.4 Neural Baroreflex Sensitivity and Long-Term Effect of Antihypertensive Agents—A Pharmacological Substudy of the Paris Prospective Study III

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Keywords

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ABSTRACT

Background/Objectives: The baroreflex is a crucial mechanism acutely modulating vascular tone and heart rate response to maintain blood pressure (BP) in an optimal range. A decrease in baroreflex sensitivity (BRS) is associated with ageing, and pathological conditions such as hypertension and diabetes. Antihypertensive agents are generally known to have beneficial effect on the BRS, however it is still uncertain if the effect is mediated through a more compliant arterial wall or a sympathoinhibitory action.

Methods: In the Paris Prospective Study III [1], spontaneous baroreflex, carotid stiffness and pharmacological drugs intake were available in 7967 adults (aged 55–75 years). The neural component of the baroreflex sensitivity (nBRS) was obtained with a cross-spectral analysis of variations in carotid distention rate and R-R intervals. Pharmacological classes were analysed according to the Anatomical Therapeutic Chemical (ATC) classification. Individuals with a BP lowering medication (BP-treated) were paired to non-BP treated individuals with a similar cardiovascular risk (controls) using a propensity score matching procedure (n = 1182 pairs).

Results: Amongst pharmacological classes of BP lowering agents, only agents acting on the renin-angiotensin system (ACEi-ARB) were associated with nBRS (β = –0.08, p = 0.045). Compared to their matched controls, ACEi-ARB users had lower nBRS (2.79 ± 0.66 vs. 2.90 ± 0.62, p = 0.03). In multivariate analysis, ACEi-ARB remained significant (stdβ = –0.09, p = 0.025) after adjustment for carotid stiffness (stdβ = 0.25, p < 0.001) and systolic pressure (stdβ = –0.20, p < 0.001).

Conclusion: In this epidemiological study, ACEi-ARB were negatively associated with nBRS. This effect is independent of BP and stiffness, which may suggest an inhibition of sympathetic activity by ACEi-ARB.

REFERENCE

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