Abstract 14

Age-Matched Attenuation of Both Autonomic Branches in Chronic Disease: III. Coronary Artery Disease

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Background: Chronic coronary artery disease (CAD) may lead to a reduction in parasympathetic and sympathetic (P&S) activity as measured by P&S monitoring (see Background in: I. Hypertension). P&S monitoring yields accurate measures of sympathetic activity (low-frequency area, or LFa), parasympathetic activity (respiratory frequency area, or RFa), and sympathovagal balance (SB = LFa/RFa ratio).

Methods: Serial P&S monitoring (ANX-3.0 Autonomic Monitor, ANSAR Medical Technologies, Inc., Philadelphia, Pennsylvania) was performed on 52 CAD patients (females = 1; age = 65.5 ± 13.3) with and without comorbidities (hypertension = 42; diabetes = 25). The data are compared with preexisting data for normal controls (age range, 40–90 years) with no history of diabetes or cardiovascular or autonomic disorders. The broken horizontal line indicates the threshold for cardiovascular autonomic neuropathy **(Figure)**.

Results: Resting P&S levels were found to be significantly reduced in chronic CAD patients compared with normal controls. An age-distributed investigation reveals that P&S activity decreases with age, a trend similar to that of normal controls. However, the differences between normal controls and CAD patients are much more marked in the younger population. The differences gradually decrease with age. These trends are observed regardless of any comorbidities or medications. P&S values for 45-year-old CAD patients were similar (or lower) in magnitude than those of 85-year-old normal controls.

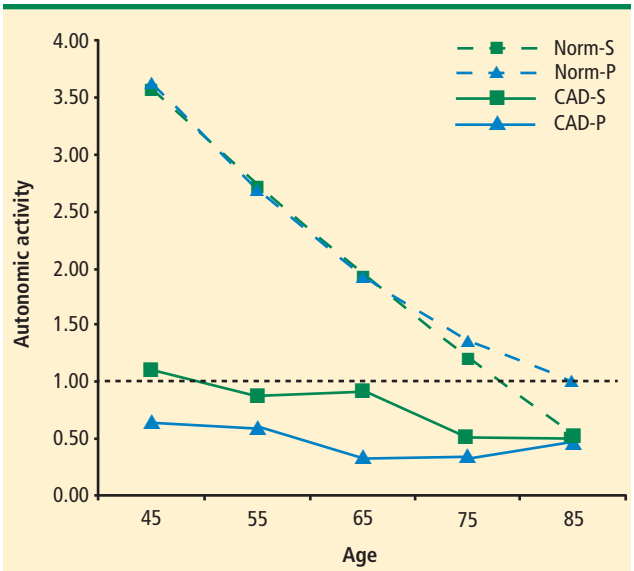

FIGURE. Serial parasympathetic (P) and sympathetic (S) monitoring in coronary artery disease (CAD) patients compared with normal (NORM) controls.

Conclusion: Overall autonomic activity appears to be significantly decreased in CAD patients compared with age-matched normal controls, suggesting that CAD may affect an acceleration in the physiologic aging process of patients compared with age-matched controls. Whether decreases in P&S activity in CAD patients is a cause or an effect needs to be established.