Abstract 15

Age-Matched Attenuation of Both Autonomic Branches in Chronic Disease: IV: HIV/AIDS

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Background: Chronic disease is known to lead to early cardiovascular autonomic neuropathy (CAN). CAN indicates increased risk of morbidity and mortality. Autonomic dysfunction (AD), defined as abnormal autonomic, or sympathovagal, balance (SB, normal = 0.4 < SB < 3.0) prior to CAN is asymptomatic. Early intervention provides physicians with more therapy options. Treating AD by establishing and maintaining normal SB reduces morbidity and mortality risk. Low-normal SB minimizes morbidity and mortality risk in patients with CAN. High SB indicates sympathetic excess. CAN with high SB indicates high risk of mortality. Early intervention in response to early testing is justified based on the diagnosis of chronic diseases. Our hypothesis is that the human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) lead to early AD.

Methods: Serial parasympathetic and sympathetic (P&S) monitoring (ANX-3.0 Autonomic Monitor, ANSAR, Medical Technologies, Inc., Philadelphia, Pennsylvania; see Background in: I. Hypertension) was performed on 232 consecutive patients (47 female) at an ambulatory clinic in Missouri. HR variability and respiratory activity data were collected concurrently and analyzed independently and simultaneously to compute parasympathetic and sympathetic (P&S) activity. The results were analyzed and are presented here against 234 aged-matched normals from our nationwide database. The level that defines the threshold for CAN (P activity = 0.1 bpm^2) is shown on the **Figure**.

Results: Upon first diagnosis (approximately age 25 on average), patients' P&S levels are near normal with SB (1.77). Within one decade patients are near CAN, presenting with advanced AD and high SB (5.30). At age 55, patients demonstrate CAN with continued high SB (3.60). Normal subjects present with CAN around age 75, yet with normal SB (1.66), which mitigates the risk.

Conclusions: Patients present with AD and CAN earlier than normal subjects do. Patients also demonstrate high SB, indicating sympathetic excess compared with normal subjects. This suggests that patients have a higher mortality and morbidity risk, which leads to greater health care costs because of increased medications and hospitalizations.

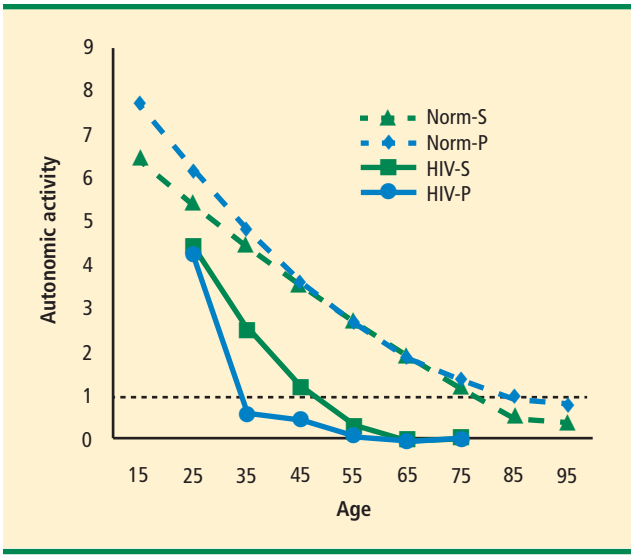

FIGURE. Age-matched human immunodeficiency virus (HIV). Serial parasympathetic (P) and sympathetic (S) monitoring in HIV patients compared with normal (NORM) controls.