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Autonomic Dysfunction is a Crucial Clinical Problem with Wide Implications

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Background: Autonomic Nervous System (ANS) balance is vital for most involuntary and essential functions in many organ systems. Evaluation and treatment of ANS dysfunction results in improvement in clinical symptoms and facilitates management in various conditions and disease states. ANS assessment using HRV analysis without respiratory activity has been attempted with inadequate information and clinical sensitivity. **Hypothesis:** The continuous wavelet transformation (CWT) approach to HRV with respiratory activity analysis, by definition, does not require signal stationarity and is not restricted by time-frequency. Therefore, it is theoretically better suited for wide clinical application. **Methods:** Serial ANS testing of 3130 consecutive cardiology patients (Diabetics=444; Females=1968; age=49.7±18.6) recruited over a six year period (1998 to 2004) using the ANX-3.0 Autonomic Monitoring System (Ansar, Inc., Philadelphia, PA). **Results:** We were able to reproducibly assess both ANS branches independently, statically and dynamically. We identified definitive patterns of ANS dysfunction, such as paradoxical parasympathetic syndrome (PPS), that are reproducible and can be followed by serial testing. These dysfunctions have clinical relevance and when corrected, not only treat the clinical syndrome, but also facilitate better management of various chronic clinical conditions, such as cardiomyopathy (CMP) and diabetes. A familial tendency has been observed. These findings suggest a strong etiologic and clinical association between ANS dysfunction and various clinical conditions, including: labile hypertension, SVT/VT, angina, and MVP syndrome. Correcting ANS dysfunction improved outcomes in all patients tested. **Conclusions:** Definitive etiology bases and a better understanding of pathophysiology and clinical manifestations were identified. Treatment protocols using existing medications with autonomically favorable actions were developed.