Neuropeptides in Orthostatic Hypotension and Vasovagal Syncope

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Orthostatic hypotension (OH) and vasovagal syncope (VVS) are the most frequent causes of syncope across all age groups. OH may occur immediately or be delayed after assuming upright posture; the delayed form is the more important clinically and often is associated with volume depletion and/or inadequate compensatory vasoconstriction due to drugs or nervous system disease. Diuretics and vasodilators are well-known causes of OH; however, the possibility exists that intrinsic neurohumoral agents with similar properties may trigger OH. Several intrinsic neuropeptides (NP) including B-type NP (BNP and NT-proBNP), atrial NP (ANP), and adrenomedullin exhibit diuretic and vasodilator properties. Although these NPs are usually only elevated in volume overload states, excess NP related to tumors or inflammatory conditions has been previously observed, and associated with OH in some cases. Recently, we reported correspondence between OH symptoms and NT-pro BNP levels in euvolemic patients without other OH explanation; most had a prior history of solid organ transplants or inflammatory disease. NP role in VVS have also been studied. Initial reports revealed increased vasopressin (VP) at time of tilt-induced VVS, but not earlier during upright posture; in this setting, NPs may centrally suppress VP thereby diminishing renin-angiotensin response during evolving hypotension. However, this latter concept is complicated by recent observations that low rather than high baseline ANP is the stronger marker of VVS susceptibility. In summary, a growing body of evidence suggests that NPs may contribute to OH and VVS, but much greater understanding is needed before the impact of NPs in these conditions becomes clear.