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Autonomic functions: The tests and their clinical applications

Autonomic nervous system plays an important role in the homeostasis of internal organ system and their integrated functions in the human body. The derangement of this function at any level may affect multiple system functions simultaneously. Disorders associated with autonomic functions are quite common, but only recently medical world has started quantifying the autonomic functions to make it a reasonably sensitive and specific diagnostic and prognostic tool. Testing and quantifying autonomic function is very complex because of the wider distribution and diverse functions it is associated with. One relatively simple battery of tests that is used commonly is Ewing battery which includes Valsalva maneuver, Deep Breathing Response (DBR), Orthostatic Testing (OT) and Isometric Handgrip Test (IHT). Besides Heart Rate Variability (HRV) is another important test of autonomic function that has high reproducibility and specificity. Most of these tests could be performed even in a resource limited settings with fair accuracy. Out of these tests deep breathing test, Valsalva manoeuvre and HRV are heart rate based tests and quantifies the cardiovagal function by assessing the heart rate changes during various manoeuvre whereas IHT is a BP based test meant for sympathetic system. Orthostatic test includes both HR and BP response to change in posture from supine to standing, hence quantifies both the vagal and sympathetic system functions. One another test which is also of significance is Quantitative Sudomotor Axon Reflex Test (QSART) which is based upon the quantitative estimation of sweat produced due to local acetylcholine stimulation. The test is useful in diagnosing distal small fibre autonomic neuropathy. Although autonomic function assessment is complex, it has got enormous value in clinical field. Standardization of the techniques and training of medical personals in the field may prove it an important tool in the clinical diagnostics.

Biography

Ramji Singh is working as a Professor and Head of the Department of Physiology at All India Institute of Medical Sciences, Patna. With more than 30 years of teaching experience, he has enormous experience in the field of Clinical and Experimental Neurophysiology. He has more than 50 research publications in national and international indexed journals. Presently, he is supervising many research projects in the department including neurocognitive and behavioural physiology. He is also a member of the elite club of FAIMER fellows and has been a well-recognized figure in the field of Indian medical education technology.

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