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**Contribution of
sympathovagal
imbalance to cardiac
dysfunctions in
prehypertension and
hypertension**

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Prehypertension has recently been observed as a potent cardiovascular risk factor. Prehypertension, similar to that of hypertension has been documented to be associated with significant damage to the coronary vasculature and increased rate of adverse cardiovascular events. However, the exact pathophysiological mechanisms that cause cardiovascular dysfunctions in prehypertension have not yet been fully elucidated. Recently, sympathovagal imbalance (SVI) as assessed by classical autonomic function tests and spectral analysis of heart rate variability (HRV) has revealed the link of hypertensive heart disease to autonomic dysfunctions in hypertension and prehypertension. Sympathetic overactivity has long been implicated as the major pathophysiologic mechanism in primary or essential hypertension. Recently, SVI in the form of sympathetic overactivity and vagal withdrawal, especially in genetically susceptible individuals has been observed in the causation of prehypertension. It has also been noted that SVI was intense with more vagal inhibition in male prehypertensives and prehypertensive siblings born to both parent hypertensives. SVI in the form of LF-HF (low-frequency power to high-frequency power) ratio of HRV spectrum has been significantly correlated with myocardial performance and blood pressure. There are reports of increase in vagal tone and decrease in sympathetic drive following practice of pranayamic breathing exercises. As vagal inhibition has been observed to play a critical role in modulation of sympathovagal dyshomeostasis for progression to prehypertension in normotensive sibling of hypertensive parents, it was suggested that practice of such yogic breathing exercises will minimize the cardiovascular risks in hypertensives and prehypertensives and will prevent the progression of the disease process.

Biography

Prof. G. K. Pal has completed his MBBS and MD degrees at the age of 26 years from Jawaharlal Institute of Post-graduate Medical Education and Research (JIPMER), the premier medical institute of India. He is presently the Professor of Medical Physiology at JIPMER. He has 26 years of teaching and research experience in Physiology and he has guided many PhD and MD students. He has published 78 research papers in reputed medical journals. His areas of research interest are obesity, hypertension and yoga. Currently, he is actively involved in hypertension research. Dr. Pal has received 15 National Research Awards from various scientific bodies of India. Prof. Pal is presently the Chief of Central Workshop of JIPMER Hospital and Biomedical Engineering Division of JIPMER. Dr. Pal was Editor-in-Chief of the journal 'Biomedicine' from 2006 to 2009, and now he is the Editor of Indian Journal of Physiology and Pharmacology since 2009. Prof. Pal is expert reviewer for many international journals.