

The role of the heart in consciousness and cognitive performance

Monireh-Sadat Mousavi¹, Gholam Hossein Riazi*¹

The issue of consciousness and cognition has been a long concern for humankind over thousands of years. So far, most investigations in this field of research, have studied the brain tissue for cognitive performance assessment. During the last two decades of the twentieth century, the astonishing of relationship between cognitive impairments and cardiovascular diseases has been reported by many researchers. In 1999, these studies led to the formation of a new branch of science called "neurocardiology" investigating the brain-heart connections. Research of neurocardiologists has shown that the heart is much more complex than a mechanical pump, and has an elaborate intrinsic cardiac nervous system (ICNS) arranged in the form of several ganglia around the cardiac conduction system. Besides, intrinsic cardiac production of many brain hormones and neurotransmitters involved in cognitive performance such as memory, thinking, decision making and motivation, has provided a complex network which is described as a "small brain". When a person experiences positive emotions such as kindness and generosity, the finest brain-heart synchronization improve cognitive performance. On the contrary, negative emotions such as hatred and jealousy through disturbing brain-heart coherency have adverse effects on cognitive performance. So the heart, just like the brain, has a significant influence on different cognitive proficiencies.

Keywords: Cognitive performance, Neurocardiology, Brian-heart connections, Intrinsic Cardiac Nervous System (ICNS), Cardiac small brain

* Prof. Tel: (+9821)61112473, Fax: (+9821) 66404680, Email: ghriazi@ut.ac.ir.

¹ Institute of Biochemistry and Biophysics, University of Tehran, Tehran, Iran