Friday, the 8th of September 2023 - Vendredi, le 8 septembre 2023

Symposium address from the Symposium President / Allocution du président du symposium
(Stephen W. Porges (PhD))
1 :10 pm – 1 :15 pm / 13h10 - 13h15

Symposium welcome address
Allocution de bienvenue

Stephen W. Porges (PhD)
Congress president / Président du congrès
Distinguished University Scientist,
Founding Director of the Traumatic Stress Research Consortium, Kinsey Institute, Indiana University Bloomington, Professor of Psychiatry, University of North Carolina at Chapel Hill

First, I want to thank the organizing committee for inviting me to preside as President of the Symposium. A special thanks to Dr. Claire-Marie Rangon and Professor Robert Bering their help in making me feel welcomed in your community.

When asked to participate, I was curious about how my work would fit the mission of your organization. How could my work be of interest to you and your colleagues? How would the research questions that I have worked on for over five decades be of interest to the field of auricular therapy? Interestingly as I engaged in learning more about the history of your discipline and especially about the bold insightful pioneering work of Dr. Paul Nogier, I began to feel more comfortable. As I realized that we shared a perspective in the 'healing' role of sensory information in 'reflexively' shifting neurophysiological state. I started to see parallels between Polyvagal Theory and the insightful model of auricular therapy proposed by Dr. Paul Nogier that identified locations in the auricle that when stimulate influenced the autonomic nervous system and the function of specific structures in the body.

Our overlap has to do with both an interest in the neural regulation of the autonomic nervous system and our vision of an optimally regulated ANS that supports the broad homeostatic functions of health, growth, restoration, and sociality. Basically, we share an implicit model in the innate intelligence of the body to regulate and self-heal when an appropriate signal is encoded by the nervous system. We share a view that when we know the parameters of the signal that the neurobiological sensor is tuned to, the organ function will reflexively return to a more optimal state. In contrast to the specificity of auricular therapy linking organs to locations on the auricles, Polyvagal Theory provides a more general model linked to more diffuse autonomic states associated with calmness and safety, danger, and life threat. Both auricular therapy and Polyvagal Theory assume that when the appropriate signals are processed, the nervous system gives up its threat reactions and self-organizes to enhance health. Within Polyvagal Theory this is emphasized as signals of safety that can reflexively move the autonomic nervous system out of threat to states of calmness that would optimistically support health and sociality.

My scientific journey started in the late 1960s, when I was investigating how heart rate changed during various forms of stimulation and mental effort. I noticed that heart rate stabilized during sustained attention and that individuals who had more endogenous baseline heart rate variability were more autonomically reactive and even had faster reaction times. This led me to become the first scientist to quantify heart rate variability as a reliable indicator of both a response to stimulation and psychological challenges as well as an individual difference. This was a time when variability in heart rate was assumed to be measurement error since the dependent variable of choice was heart rate. As an individual difference I thought it would be diagnostic or at least predictive of a propensity to autonomically react to stimulation. The decades that followed and the proliferation of HRV research supports both insights.

My work lead in two directions. One focused on an intellectual curiosity to understand the neural mechanisms mediating the changes in heart rate and heart rate variability. When I started my research, the vagus was seldom mentioned, however my research led to an interest in the vagal regulation of the heart. The second focus on the development of methods to dynamically assess vagal regulation. These research trajectories led me into questions of how measures of heart rate could contribute to medical diagnosis and predictions of survival.

Along this journey I was confronted with a challenge, how could the vagus when expressed in features of heart rate variability (i.e., respiratory sinus arrhythmia) be associated as supporting homeostatic functions but could be lethal when expressed as bradycardia. Solving this vagal paradox, led to the conceptualization of the polyvagal theory. The solution emerged when the phylogenetic transition from extinct ancient reptiles to mammals was uncovered with the identification of a uniquely mammalian ventral vagus that integrated the regulation of the structures of the face and head with the vagal regulation of the heart. This innovation enabled mammals to signal conspecifics through facial muscles and vocal intonation the autonomic state they were in. This system, labelled the social engagement system, enabled ingestion (nursing), social communication, and co-regulation.

During the evolutionary journey cardioinhibitory neurons migrated ventrally from the dorsal motor nucleus of the vagus to the source nuclei of the nerves that arise from pharyngeal arches during embryonic development and regulate the striated muscles of the face and head. Through evolution interneuronal connections emerge between the ventral vagus (nucleus ambiguus) and the source nuclei of cranial nerves V, VII, IX, X, and XI. The product of this ventral migration is the social engagement system and its anatomical substrate, the ventral vagal complex. It is through these interneuronal connections that portals of vagal stimulation are expanded to enable acoustic stimulation and sociality to function as efficient and effective forms of vagal nerve stimulation.

It is this journey of the ventral migration of cardioinhibitory vagal neurons led me to the ear. However, my interests were not in the auricle, my interests were in the neural regulation of middle ear structures and my map of stimulation was focused on how to stimulate the afferent limb of the social engagement system. Specifically, this is how signals of safety could be input in the structures regulated by cranial nerve V, VII, IX, X, and XI as portals to move the ANS into a state that would support health, growth, restoration, and sociality. For example, signals of safety, including patterns of vocalizations, could be used to calm the ANS and function as an acoustic vagal nerve stimulator. Thus, the social engagement system links the vagus with sociality and sociality with health.

I am looking for to sharing the next few days with you and learning from your pioneering work.

Thank you.

Stephen W. Porges

References

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