

Understanding Neurobiology of Resilience and its Importance in Preventing Physician Burnout in the Era of COVID19

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It is not a war involving ballistic missiles or gunfire. It's not a military action with hundreds and thousands of gravely injured soldiers. It is a battle fought against a tiny invisible virus with thousands of people dying from multitude of pathology and limited treatment options.

Whether it is resuscitating a young patient or being away from family for a long time or even facing the challenges of tele medicine, physicians have experienced tremendous amounts of stress, anxiety, guilt and frustration in this pandemic.

As never before in recent history, COVID - 19 has exposed both the fragility and humanity in us, which in turn has brought us closer to our patients. In the modern era of technology, this pandemic has made us realize very clearly that no technology can replace the healing touch of a physician. Regardless of the trauma and other stressors we face in our life, the pandemic has forced us as physicians to balance more than ever before, even in the setting of limited resources. The strain of multitasking has nearly exhausted much of our physical and psychological reserves. It's not only patients and their families who need to be emotionally supported through this time - careful attention should be paid to physicians so that they have enough resources for emotional decontamination [1].

Psychologists describe resilience as a process of adapting well in the face of adversity, trauma, or tragedy. Every person responds differently in the periods of stress and in painful situations [2]. Resilience involves behaviors, thoughts, actions that can be learned and embraced by anyone [2]. Although the neurobiology of resilience is not as complex as rocket science, during these uncertain times it is worthy to review the tools that can help us to build our resilience. The two main neurotransmitter systems involved in resilience are the Hypothalamic - Pituitary axis and Sympathetic nervous system [3]. In addition, there is also an important relationship between activity of dopaminergic and serotonergic neuronal circuits in stress regulation [3]. In an article by M. Ortega, the author described alterations of nervous system and endocrine system that are manifested as a physiological response to a stressful situation [4]. It was determined that more effective and superior responses were as a result of positive reinforcement expressed during resilience. It is a cycle of events beginning with behavioral change to avoid stressful situations, later activation of sympathetic nervous system with release of adrenaline and noradrenaline and finally central nervous system activation creating a rebound effect to overcome the situation [4]. Cognitive reappraisal techniques in control of emotions were described in an editorial described by Dr. Nierenberg, professor of psychiatry at Harvard medical school. These techniques help modify the distress of stress by using the prefrontal cortex to damp down the hyperarousal with several pathways to enhance resilience, including maintaining relationships, keeping physically active, eating healthy foods to maintain a healthy biome, practicing mindfulness, finding purpose, accepting change and putting events into perspective [5,7].

Before the onset of Covid 19, each day brought physician burnout crisis on headlines. Approximately 54% physician's in United states of America has shown some signs of burnout [6]. Now is the time, more than ever, to stay focused on physician wellbeing and on building

resilience. Physicians should recognize that experiencing stress and the feelings associated with it are by no means a sign of weakness or a reflection of poor professional ability. "Rome was not built in a day!!" Increasing resilience takes time and intentionality. Like building a muscle, it requires perseverance. It is this time of uncertainty to remind ourselves that despite the current challenges of a pandemic, being a physician is a noble calling to take care of those in need. It is essential that as caretakers and healers each physician should invest in building wellbeing and resilience.

Conflict of Interest

None.

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