Why We Know Relatively Little About Stress And Disease Or How Drugs Work

Over the past 50 years, all the books and articles about the response to stress and how stress can cause disease invoke Cannon's "fight or flight" sympathetic nervous system and adrenomedullary responses and Selye's "Alarm Reaction" and "General Adaptation Syndrome" featuring the role of the pituitary-adrenal cortical axis in the production of cortisol and cortical hormones. More recent research has focused on how cortisol lowers immune system resistance to infections and possibly cancer and causes short term memory loss and cognitive disturbances, and how cortisol and other stress related hormones can contribute to depression, anxiety, PTSD and other psychiatric problems. There is rarely any reference to, much less discussion, of effects on neurotransmitters that more likely mediate depression, a variety of anxiety disorders, and addictive behaviors that are stress-related. This is quite understandable. Such research is in its infancy for several reasons. Determining the concentrations of catecholamines, cortisol or other barometers of stress in blood, cerebrospinal fluid, or saliva are now standard, and accurate, reproducible procedures that are relatively inexpensive and often reimbursable are available.

While useful, these do not necessarily reflect what is going on in the brain. Measuring levels of specific brain neurotransmitters is very costly; techniques vary and require specific sophisticated equipment and expertise. This makes it difficult for others to confirm results or to conduct double blind studies that satisfy the scientific community's requirements for proof. Most such research is sponsored by pharmaceutical companies eager to develop blockbuster drugs for stress-related disorders. Few would be willing to make the substantial investment needed to prove both the efficacy and safety required to obtain FDA approval. Another stumbling block is that even if you demonstrate that a new drug provides benefits and is associated with a consistent effect on some specific neurotransmitter, there is no proof that this is the mechanism of action responsible. We are just beginning to appreciate this with respect to Prozac and other antidepressants that presumably work by boosting serotonin but have been found to affect other neurotransmitters that most likely also play a role. Similarly, it is now quite obvious that the benefits of statins are not related to lipid lowering but rather to reducing inflammation and other "pleiotropic" actions.

As indicated previously, the space constraints and the format of this and most Newsletters make it impossible to include important relevant material and references that many readers have repeatedly requested. Because of this and rising production and postage costs, we are changing over to an electronic version that will allow additional and frequently more current coverage of certain topics. This should also provide a more convenient way to save and reference issues that are of particular interest. **It will therefore be necessary for subscribers to send their preferred e-mail address to stress125@optonline.net as soon as possible to insure uninterrupted service.**

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