

1: The Heart-Brain Connection Begets Cardiovascular Psychiatry and Neurology

Neurology and cardiology are the two areas I am interested in. I am really passionate about cardiology but the grueling IM residency and the lack of a personal life as a cardiologist scares me. I am female and I would like to balance a family life with work.

Incorrect Affiliation The application of epidural electrical stimulation to the lumbosacral spinal cord in individuals with a spinal cord injury SCI facilitates supraspinal control of paralyzed limbs. Here, we investigated whether lumbosacral epidural stimulation could be optimized to control cardiovascular functions in the short term, a top health priority and primary cause of death, in a 2 in 1 individual with a motor-complete cervical SCI. The placement was confirmed via radiography Figure 1 A. The participant gave his written informed consent. We first conducted a series of tests over 2 weeks to determine the optimum stimulation parameters to increase blood pressure BP in the seated position, ultimately selecting a wide-field stimulation configuration Figure 1 A; frequency, 35 Hz; pulse width, milliseconds; intensity, 3. **Results** The stimulation resolved the orthostatic hypotension Figure 1 B, which is a debilitating and prevalent condition in SCI. The stimulation also prevented the reduction in cardiac filling ie, end-diastolic volume during tilt Figure 1 D, thereby preserving stroke volume and cardiac output. The general lack of lower-limb electromyography during stimulation indicates that the skeletal muscle contraction was not leading to venous pump-mediated increases in BP and venous return Figure 1 E. **Discussion** To our knowledge, this study is one of the first to demonstrate the acute cardiovascular benefits of lumbosacral epidural stimulation in an individual with SCI that spanned the systemic vasculature, heart, and brain. That we found an immediate benefit in integrated cardiovascular responses raises the possibility that epidural stimulation can excite sympathetic circuitry and instantaneously modulate cardiovascular function in individuals with SCI. We postulate that epidural stimulation can specifically modulate cardiovascular function by increasing the resting membrane potential of sympathetic circuitry via the stimulation of dorsal afferent relays Figure 2. **Back to top** **Article Information** **Corresponding Author:** This article is published under the JN-OA license and is free to read on the day of publication. This article was corrected online November 5, , to correct the affiliation of Dr Phillips. Drs West and Phillips contributed equally to this work and share first authorship. Drs West and Phillips had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. West, Phillips, Walter, Krassioukov. **Acquisition, analysis, or interpretation of data:** Drafting of the manuscript: Critical revision of the manuscript for important intellectual content: Administrative, technical, or material support: **Conflict of Interest Disclosures:** This study was funded by grant from the Rick Hansen Institute. The Rick Hansen Institute had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication. We thank Alison M. Lee, BS International Collaboration on Repair Discoveries, for their assistance with the collection and analyses of electromyography and transcranial Doppler data, respectively. They were not compensated for their contributions.

2: Cardiac & Neurology | McKenzie-Willamette Medical Center

Neurocardiology is the study of the neurophysiological, neurological and neuroanatomical aspects of cardiology, including especially the neurological origins of cardiac disorders. The effects of stress on the heart are studied in terms of the heart's interactions with both the peripheral nervous system and the central nervous system.

Overview[edit] Neurocardiology refers to the pathophysiological interplays of the nervous and cardiovascular systems. The brain emits neurological signals of oscillating frequencies. The neural rhythms provide information on steady state conditions of healthy individuals. Variations in the neural rhythms provide evidence that a problem is present regarding physiologic regulation and help physicians determine the underlying condition quicker based on the given symptoms. These problems are related to the fundamental factor of stress on the body. As stated previously, the changes in neural oscillations can contribute to the knowledge of what a steady state in an individual looks like, especially because it changes based on the person, as well as contributing to the imbalance of the nervous system and physiological function. Moreover, the brain can control the heart rate through the sympathetic nervous system. A distinct balance between these systems is crucial for the pathophysiology of cardiovascular disease. An imbalance can be caused by hormone levels, lifestyle, environmental stressors, and injuries. The heart is both the source of life and a source of cardiac arrhythmias and complications. The neural signals are then transferred to the brainstem, followed by the spinal cord, which is the location where the heart receives all its signals from. In further detail, the heart receives its neural input through parasympathetic and sympathetic ganglia and lateral grey column of the spinal cord. This includes cardiac ischemia, stroke, epilepsy, and most importantly, heart arrhythmias and cardiac myopathies. Many of these problems are due to the imbalance of the nervous system, resulting in symptoms that affect both the heart and the brain. Neurocardiology is the understanding that the body is interconnected and weaves in and out of other systems. Without taking the integration into account, the doctor can consequently delay a correct diagnosis and treatment for the patient.

Stress[edit] The physiological effects of stress on the body Cardiovascular systems are regulated by the autonomic nervous systems, which includes the sympathetic and parasympathetic nervous systems. A distinct balance between these two systems is crucial for the pathophysiology of cardiovascular disease. Chronic stress has been widely studied on its effects of the body resulting in an elevated heart rate HR, reduced HR variability, elevated sympathetic tone, and intensified cardiovascular activity. Consequently, stress promotes an autonomic imbalance in favor of the sympathetic nervous system. The activation of the sympathetic nervous system contributes to endothelial dysfunction, hypertension, atherosclerosis, insulin resistance, and increased incidence of arrhythmias. The hypothalamus is the part of the brain that regulates function and responds to stress. The stress response starts with the hypothalamus stimulating the pituitary gland, which releases the adrenocorticotropic hormone. This signals the release of cortisol, the stress hormone, initiating a multitude of physical effects on the body to aid in survival. The negative feedback loop is then needed to return the body to its resting state by signaling the parasympathetic nervous system. Various hormones and glands become overworked, chemical waste is produced resulting in degeneration of nerve cells. The result of prolonged stress is the breakdown of the body and the nervous system. Stress alone does not produce potentially deadly arrhythmias in normal healthy hearts, however studies do appear to show that stress causes cardiac damage that may lead to arrhythmias.

Arrhythmias[edit] In a study relating to relationship of neurocardiology of arrhythmias and sudden cardiac death, they hypothesized that the individual with a diseased heart has a greater likelihood of experiencing cardiac arrhythmias and sudden cardiac death when the neurocardiac axis is activated. The main types of arrhythmia leading to sudden cardiac death are tachyarrhythmias and bradyarrhythmias. Tachyarrhythmias are associated with ventricular fibrillation and ventricular tachycardia. Bradyarrhythmias are associated with complete atrioventricular blockage and sudden asystole. The underlying cause of sudden cardiac death is unclear, despite the understanding that heart disease causes arrhythmias, which in turn produce sudden cardiac death. Sudden cardiac death is triggered by an electrical accident, which can be treated with ventricular defibrillation. In a recent study on patients with already diseased hearts and electrocardiographic

abnormalities, there was evidence of lost hypothalamic-medullary integration at the midbrain. This resulted in the fact that overactivity in the parasympathetic nervous system may also cause sudden death with asystole after stroke. Catecholamine medications have been studied to mediate the effects of electrocardiographic changes and heart damage. The present understanding about how sudden cardiac death can result from epilepsy is that the brain is stimulating an arrhythmia. Recordings during seizures report that the onset of tachycardia just prior to the seizure is common, with both atrial and ventricular ectopy. Emotions[edit] The relationship between emotions and their effect on the destabilization of the heart continues to be a mystery. It is considered that both the spatial and temporal patterns of autonomic input to the heart play a key role in altered electrophysiological parameters. The body continually attempts to maintain homeostasis through the baroreflex. This balance in the autonomic neural input to the heart in response to the pressure and volume changes leads to alterations in the baroreceptors. Most of the medications work on stressors of the heart and some also work to treat the neuropsychiatric diseases. Antidepressant medications have shown to be insufficient to induce normalization of the cardiovascular dysfunctions, which are associated with the psychiatric conditions. Overall the blockers reduce incidences of long-term disease. The blockade not only affects cardiomyocytes directly but also works to reduce the risks of heart failure and hypertension. One side effect is that it can activate pulmonary edema with patients who already have unstable hearts. In particular, beta-blockers are used for the management of cardiac arrhythmias. They link the brain and the cardiovascular system in cardiovascular diseases. A meta-analysis concluded that with anti-depressant medication, the percentage of patients in remission from depressed symptoms significantly increased from just anti-depressants alone. Spironolactone This medication acts by inhibiting binding to mineralocorticoid receptors. This has shown positive feedback in tackling both cardiovascular and activation of the main feature of stress-related disorders. Some side effects of Spironolactone are hyperkalemia , erectile dysfunction , lower testosterone levels, and menstrual irregularities, all of which lead to an increase in noncompliance with the medication. It is commonly used to reduce the risk of stroke and heart attacks by treating high blood pressure, anxiety, and panic disorders. It also leads to the decreased activity of norepinephrine release from the sympathetic nerve terminals. Physical activity and a well-balanced diet favor cardiovascular conditioning and improves performance and capacity. Exercise has a positive effect on the metabolism, which controls glucose levels, especially for stress-related pathology and brain disorders such as depression, which impose a heavy burden on the cardiovascular system. Many studies are currently being done for more information and knowledge regarding the common mediators for cardiovascular disease and the central nervous system. The brain-heart interaction is considered bidirectional, however the majority of times the central nervous system is regulated more over the heart and blood vessels.

3: Neurocardiology - Wikipedia

From the brain to the spinal cord to the nerves and muscles body-wide, neurology deals with the study and treatment of disorders of the nervous system. Cardiology deals with the study and treatment of disorders of one of the most important muscles in the body—the heart.

If heart failure happens, the blood supply or oxygen to the brain will be reduced and thereby memory loss happens. According to the new study, heart failure is directly associated with loss of grey matter in the brain which is associated with memory, reasoning and planning. It has been proven that many heart failure patients had bad long time or immediate memory. If any damages occur in heart or blood vessels, the blood supply to brain will be collapsed. There are many types of heart diseases and most common heart disease is Coronary Heart Disease where coronary arteries are narrowed or blocked. Cardiac arrest refers to the disruption of heart function that is the malfunction of electrical system of the heart. Often, heart attack mistakenly refers to cardiac arrest, but heart attacks are caused by a blockage that stops the blood supply to the heart. Pediatric and Geriatric Cardiology The pediatric cardiology termed as the study that provides diagnosis and management of congenital and acquired heart disease in infants, children, and adolescents. Congenital heart defect is a condition present at birth that affects the way heart works. According to the survey, in the year, 1 million children and 1. Geriatric cardiology deals with the study of cardiovascular disorders in elderly people. The most common heart disease that is being a mortality in old people is Coronary heart disease CHD. Vascular disorders such as atherosclerosis and peripheral arterial disease cause significant morbidity and mortality in aged people. Cardiac Nursing and Health Care Cardiac nursing is a specialty nursing in which nurses will work with the patients affected by various heart diseases. Cardiac nurses help in treating the conditions like unstable angina, cardiomyopathy, coronary artery disease, congestive heart failure, myocardial infarction and cardiac dysrhythmia under the guidance of a cardiologists. They care for patients those who are recovering from cardiac procedures such as bypass, angioplasty, or pacemaker surgery. Cardiovascular Research and Hypertension Cardiovascular research extensively involves the research aspects in the field of cardiology, diagnosis and treatment of cardiovascular diseases such as cardiomyopathy, atherosclerosis, arrhythmia, heart attack, impairment of function of cardiac valves and congenital heart diseases. This conference will be platform for postgraduate students to conduct work in the fields of cardiology, angiology, hypertension and cardiac and vascular surgery. One of main causes of cardiac arrest is Hypertension. The excess strain or hypertension causes the narrowing of arteries that supply blood to heart and causes deposition of fat and cholesterol, thereby causing Heart attack or stroke. The common symptom of heart attack is chest pain.

4: NEUROLOGY OF CARDIOLOGY | Clinical Gate

Cardiology deals with the abnormalities of the heart. It includes diagnosis and treatment of congenital heart defects, coronary artery disease, heart www.enganchecubano.coms, Neurology deals with the anatomy, functions and organic disorders of nerves and nervous system, which includes brain, the spinal.

5: Nursing Opportunities in Cardiology and Neurology

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7: Specialty Certificates | American Board of Medical Specialties

Cardiovascular Psychiatry and Neurology is a peer-reviewed, Open Access journal that publishes original pre-clinical/basic and clinical research on biological mechanisms of and treatments for co-occurring cardiovascular disorders and disorders of the central nervous system, including alterations in behavior, emotion, and cognition.

8: neurology vs. cardiology? please help? | Yahoo Answers

BIONECA project established the platform for coordinated interaction among top-level scientists in the fields of regenerative cardiology, regenerative neurology, stem cell biology, physics, chemistry, material science, material engineering, computational modelling and advanced imaging technologies.

9: Cardiovascular Psychiatry and Neurology – An Open Access Journal

Objective To investigate whether greater cardiovascular fitness in midlife is associated with decreased dementia risk in women followed up for 44 years. Methods A population-based sample of 1, women 38 to 60 years of age was examined in

California diary of General E. D. Townsend. Theory of Quaternions. By Sir W. R. Hamilton. [1 . 1 Red mans land/white mans law Personality theories workbook donna ashcraft How to buy stocks the smartway You are mine david haas sheet music The Revolutionary Vol. 1 Alterations in endocrine function 3./tDecision and choice/t59 Enlightenment and early traditions Living Off the Sea Editing uments in adobe er A bachelor of arts by Richard Holbrook Class six math book english version High-speed devices and circuits with thz applications Corporate portfolio management theory and practice The lives and times of archy and mehitabel Sujatha Fernandes Best instruction book ever! Fascism and Nazism Too good to be true? Overcoming obstacles Strategic Marketing Problems: Cases and Comments Knowledge Competitiveness Goat rearing business plan Introduction to thermodynamics textbook Bridles of the Americas, Volume 1: Indian Silver Annual of Cardiac Surgery, 1994 The great void within Melbourne House. By the author of Wide, wide world. Ch. 13 On the Subject of Estimating Bluegrass Guitar Solos Every Parking Lot Picker Should Know Scientific American Supplement, No. 458, October 11, 1884 Managing contacts on your iPad By and by, her features changed for the better and lustre of her eyes returned, and her behavior became r Testking 200-120 MCSA Training Guide (70-218) Science of social issues. Tancet study material for cse Volcanic activity and climate Pearl book :the definitive buying guide