



# The Spinal Column

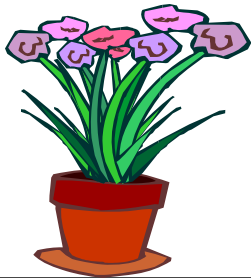
Spring 2007

MAY 2007

*Next Spinal Cord Chapter Meeting is May 21, 2007.*

*7th floor Activities Center at Metro-Health!*

*Hope to see you There! Why not invite a friend to join you?*



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## CARDIOVASCULAR COMPLICATIONS IN SPINAL CORD INJURY

BY DR. GREG NEMUNAITIS

Spinal Cord injury can result in a significant compromise of cardiovascular control as a result of impaired autonomic nervous system and skeletal muscle paralysis. Cardiovascular complications vary depending on the level of injury.

If we look at the anatomy there is a communication between the brainstem and the autonomic nervous system (ANS) is important for the control of the cardiovascular system and is often compromised after SCI. Sympathetic nervous system (SNS) neurons originate in the intermediolateral cell column at T1-L2 neurologic levels and assist in increased vasoconstriction, heart rate and heart contractility. The SNS innervation of the heart comes from T1-4 levels. Therefore, upper thoracic and cervical SCI, especially complete injuries, leave individuals without the ability to control all or some of their SNS function. The Parasympathetic nervous system (PNS) originates in the brainstem and transmits PNS activity through the Vagus nerve to all autonomic end organs down through the transverse colon. The PNS decreases heart rate and contractility.

Loss of Somatic nervous system innervation of the leg muscles (paralysis) can reduce venous return and preload to the heart and result in decreased cardiac output.

Immediately after a spinal cord injury occurs, the blood pressure rises due to the release of norepinephrine from the adrenal glands and by a pressor response from mechanical disruption of vasoactive neurons and tracts in the cervical and upper thoracic spinal cord.

Following the rise in the blood pressure, there is decreased SNS activity because of the interruption of the descending sympathetic tracts. Lack of supraspinal input develops causing cutaneous vasodilation, lack of sympathetic vasoconstrictor activity, and absent sympathetic input to the heart, translated means, hypothermia, hypotension, and bradycardia. All of this is as a result of lack of sympathetic input and unopposed vagal tone.

Overtime (average 3 weeks) reflex sympathetic and somatic reflex activity increases due to a loss of supraspinal inhibition and blood pressure and leg reflex activity in-

### "My Story" by Michael Simonson

*On May 31st, 1998, I was 26 years old and moved to Henderson, Nevada, a suburb of Las Vegas. This was a great opportunity for me to pursue my commercial real estate career. In October and one week prior to my wedding day, I was diagnosed with non-Hodgkin's Lymphoma. I guess you could say this was probably bad timing for me. I had just purchased a house and never really had the chance to unpack everything. Because of our ten-year relationship, we still proceeded with the wedding, despite the horror stories we were told from the side effects of chemotherapy. My whole life I have cont. 4*

## ARE YOU INTERESTED IN RESEARCH?

How would you like to participate in a research study which could impact the treatment and care of all Spinal Cord Injured persons? It's easy. Go to the web-sites below:

[www.ninds.nih.gov](http://www.ninds.nih.gov) and [ClinicalTrials.gov](http://ClinicalTrials.gov)

There are FIVE research projects on this website that you could take part in, in the State of Ohio. Some of these studies may have concluded. It was hard to tell from the information on the website. I would encourage you to call and find out if you could still participate.

The FIVE studies are as follows:

**1. Study of an Implantable Functional Neuromuscular Stimulation System for Patients with SCI**

You have to be 18yrs or older. The Protocol for the study can be found on the website. This study is being conReserve (216) 778-7877 and Dr. John Davis at MetroHealth Medical Center (216) 778-3456.

**2. A 15-Week Trial to Assess Pregabalin for the Treatment of Nerve Pain due to SCI.**

Contact Pfizer at 1-800-718-1021.

**3. Electrical Activation of the Diaphragm for Ventilatory Assist.**

The principal investigator is Dr. Onders at University Hospital Case Medical Center. Contact Mary Jo Elmo, NP, for more information at (216) 844-8594.

**4. Effects Of GW679769 on Bladder Nerve Function and Symptoms of Overactive Bladder in SCI.**

Contact Firouz Daneshgari at 877-379-3718

**5. Oxandrolone to Heal Pressure Ulcers.**

Contact Dr. Chester Ho at the Cleveland VAMC at (216) 791-3800 ext 5520. This study is current! Go to the website to read the eligible criteria for this study.

## SPINAL CORD ANNUAL FORUM



The Annual Spinal Cord Injury Forum is right around the corner. This year's date is August 3, 2007. The theme has been decided on: Mardi Gras!!! That means plenty of good music, good food and partying!! We are thinking of shortening the day somewhat to make it easier for people to attend. Registration will be from 8:30am to 10am. We are thinking of a movie, games and food for the early bird who arrive for the 8:30am registration. The Key Note speaker will begin at approximately 10:15am. Lunch and vendors will be from 12-1pm. Vendors will also be available in the afternoon.

Nothing is set in stone yet. The forum meetings are just beginning. The Planning committee will be meeting monthly for the next couple months, then


weekly until all the organization is complete: food, speakers, brochure, rooms and time. Ask any member of the Spinal Cord team for information. You can also call Denise Forster-Paulsen at 216-778-3804 for any questions.

If you know any vendors who would like to be involved as a sponsor, please let Jacquie Stanton know at 216-778-3174. We are hoping for a generous vendor donation to pay for the keynote speaker-a mere \$5,000!! Anyone interested? Anyone have any ideas?

Every year the planning committee attempts to outdo the year before and this year is no exception!

If you would like to donate any items for the raffle, contact Karen Hooven. Contact a committee member for any questions. Thanks. See you August

# May 2007

SUN	MON	TUE	WED	THU	FRI	SAT
		1 7pm AA mtg	2	3	4	5
6	7	8 7pm AA mtg	9	10	11	12
13  Mother's Day	14	15 7pm AA mtg	16	17	18	19
20	21 7pm SCI mtg	22 7pm AA mtg	23	24	25	26
27	28	29 7pm AA mtg	30	31		

**MARK YOUR CALENDARS NOW FOR THE EVENTS NOTED! EVERY MONTH, WE WILL TRY AND KEEP EVENTS CURRENT. SUBMIT ANY EVENTS, MEETINGS, ETC. TO THE EDITOR ASAP!**

**MAY 17,18,19: Ohio Wheelchair Games in Columbus, Ohio.**

**MAY 20, 2007, SUNDAY: Anticipated date for the MetroHealth Challenge**

**May 21, 2007: Dr. Frost to speak on Neurogenic Bowel management issues. Speaker to be announced to discuss Adaptive Golfing (tentative).**

**June 18, 2007: Dr. Dimarco and Dana Hromyak, RRT will speak on Restoration of Cough using electrical stimulation (tentative).**

**August 3, 2007: Spinal Cord Injury Forum from 8:30am (registration) to 4pm.**



*“My Story” cont.*

*been very active, never smoked, ate the right foods, and felt as if I was too young to get cancer and this can’t happen to me. This isn’t fair. Well, it did.*

*My doctor in LV said that it would be in my best interest to move back to Cleveland and take advantage of all the great hospitals in our area, as well as family and friend support. So I did. I have undergone many high dose chemotherapies, radiations, and even the horrifying “bone marrow transplant”. After many uneventful therapies, you would think I would be in remission, healthy as an ox, and beat this dreadful death defying disease. Of course not, I’ve always done things the hard way. On August 10, 1999, things took a turn for the worse. My surgeon gave me only two weeks to live. I was immediately put on dreadful salvage chemotherapies with no future hope and soon thereafter, my wife*

*divorced me. My family frantically surfed the Internet and found an experimental drug called Bryostatin. At first, I thought, how can drugs being advertised on the Internet save my life? Usually for me, computers crash and cause viruses, not give me a new lease on life. However, if I continued taking salvage chemo, the chemo would kill me before the cancer would. So with no other options, two weeks to live, and a two-month waiting period for the drug, I needed to stay alive and take the risk that Bryostatin would work. I began taking it in December of 1999. The drug was given at UH (University Hospital) by Dr. Scot Remick and administered by the careful management of Pam Ksenich, who are the contributing factors of my well being today. On Oct. 23, 2001, I was finally classified as being “Cancer Free”.*

*On the day I was celebrating the happiest day of my life, I was experiencing extreme pain in my hips. Unfortunately for me, the steroids that I received during chemo required me to have two total hip replacements. This took me by surprise. I just defeated cancer and now another challenge. However, the worse was yet to come. About two years after the hip surgeries, I started to notice weakness in my legs. I was diagnosed with something new that would alter my lifestyle possibly forever, Radiation Myelitis. This is a spinal cord injury due to high dose radiation to the spine. This is an extremely rare side effect only occurring in 3/ one million people. It has paralyzed me from the waist down. I am learning to adjust to my new altered lifestyle and will continue to look for another miracle drug that will allow me to walk again. I will never give up on hope, because hope gave me strength to live and it will continue to give me the strength to walk someday!!* (Michael is a patient of Dr. Nemo’s)

Dr. Nemo, cont.

**CARDIOVASCULAR COMPLICATIONS**

Short term

Long Term

Hypotension

Autonomic dysreflexia

Bradycardia

Tachyarrhythmia

Poikylothermia

Reduced Exercise response

Deep Vein Thrombosis

Coronary Heart Disease

Reduced Exercise response

Poikylothermia

Peripheral Edema

**Hypotension**

Decreased compensatory vasoconstriction (due to changes in sympathetic activity), in the large vascular beds (skeletal muscle and splanchnic regions), in association with venous pooling in the lower extremities and decreased muscle activity reduces venous blood return, stroke volume, and blood pressure. Hypotension, and especially orthostasis, usually improves within days to weeks as compensatory changes occur in the vascular beds, skeletal muscle, and renninangiotensin aldosterone system.

**THE NORTH EAST OHIO CHAPTER OF THE NATIONAL SPINAL CORD INJURY ASSOC.**

MetroHealth Rehabilitation Institute of Ohio (MRIO)  
2500 MetroHealth Dr.  
Cleveland, Ohio 44109-1998  
Main phone: 216-778-7800  
\*The Northeast Ohio Spinal Cord Injury Association is a 501 (C)(3)  
Tax exempt, Non-Profit Association\*

**THANKS TO OUR MEETING SPONSORS for their generous donation of information and refreshments!! Yum**

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Email: khooven@metrohealth.org



Do you have any items for sale? Let the editor know and your items will be included in the newsletter.

The NorthEast Ohio Chapter of the Spinal Cord Injury Association is a non-profit organization aimed to support and empower those persons with a spinal cord or associated injury.

Chapter meetings are held once a month on the third Monday of each month. The meetings are held at MetroHealth Medical Center 7th Floor Activities Room.

Parking is free and wheelchair accessible. Food is provided by donating vendors and companies at no cost to participants.

A Chapter newsletter is published several times during the year. Any member of the chapter is welcome to submit ads, articles, or other newsworthy items to the editor. Please do so at least one week prior to the meeting. Items for sale are welcome.

**PARALYSIS RESOURCE GUIDE** from the Christopher and Dana Reeve Paralysis Research Center is available at **NO COST** call toll free 1-800-539-7309 or email [info@paralysis.org](mailto:info@paralysis.org) or internet site [www.paralysis.org](http://www.paralysis.org) 9am-5pm Eastern time.

**JUST A REMINDER.....**

**MAY 21st IS THE NEXT CHAPTER MEETING!**

**Would you like to Sponsor a meeting? Contact any of the Officers at the numbers listed. We still need a sponsor for the June meeting: contact Jeff, the treasurer, if you are able to sponsor. We appreciate your support.**

**The Spinal Cord Unit now has available cards with the information on A.D. that fit conveniently in a wallet, pocket or purse. The cards are made and donated by the NORCISS Model Spinal Cord System grant.**

**Dr. Nemunaitis' article will continue in the next article. It is chock full of information! I was unable to include all of the article in this newsletter-so watch for the June newsletter!!! Thanks and see you at the chapter meeting.**

**7A SCI Cord Injury Unit: 216-778-3805**

**Dr. Greg Nemunaitis, Director, Spinal Cord Injury Unit: 216-778-5514**

**Dr. Melvin Mejia, new attending for the Spinal Cord Injury Unit: 216-778-3805**

**Denise Forster-Paulson RN NP 216-778-3804**

**Outpatient Therapy Services: 216-778-4414**

**Wheelchair Clinic: 216-778-5514**

**United Spinal Assoc: [www.unitedspinal.org](http://www.unitedspinal.org)**

**National Spinal Cord Assoc: [www.spinalcord.org](http://www.spinalcord.org)**

**ADA: [www.ada.gov](http://www.ada.gov)**

**Chapter Officers:**

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**Dave Lytle (V.President): [lytle101@msn.com](mailto:lytle101@msn.com)**

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