NOVA SCOTIA

CardioVascular HEALTH NOVA SCOTIA

The Bulletin

IMPROVING CARDIOVASCULAR HEALTH OF NOVA SCOTIANS

Volume 8 **Issue 2** **Fall 2013**

Welcome to the Cardiovascular Health Nova Scotia (CVHNS) e-mail bulletin, produced 3 times annually. The Bulletin has been created to share information about the program's activities, related cardiovascular health initiatives, and ideas from around the province.

HIGH SENSITIVITY TROPONIN

Acute coronary syndromes (ACS) account for approximately 100,000 hospitalizations across Canada annually. An electrocardiogram (ECG) remains a key initial diagnostic test in suspected ACS, but on its own is inadequately sensitive for reliable diagnosis. In addition to an ECG, current guidelines therefore recommend measurement of cardiac troponin as another essential component of ACS diagnosis.

Troponins are regulatory proteins released from cardiac muscle following myocardial injury and can be detected and quantified in circulating blood. Two distinct troponin isoforms, troponin I (TnI) and troponin T (TnT), can be measured to aid ACS diagnosis. Importantly, there are many possible causes of myocardial injury leading to troponin elevation. Current TnI and TnT assays can measure troponin levels with a high degree of precision but cannot determine the exact cause of troponin release into the circulation.

Current guidelines recommend the use of troponin assays with high precision and a coefficient of variation <10% at the 99th percentile of the assay's upper reference limit. Recent advances in assay technology have led to the availability of troponin assays with increased sensitivity, so called ***high sensitivity troponin assays*** (hsTnT) . Some of these new assays are so sensitive that they can detect troponin in up to 90% of a normal reference population. A hsTnT assay has recently been implemented in a number of hospitals across Canada, but its clinical application and utility remain somewhat unclear.

hsTnT is highly sensitive for detecting myocardial injury and has improved the detection of acute myocardial infarction (MI) in several studies. However, this has occurred at the expense of reduced specificity compared to previous standard troponin assays. hsTnT enables ACS to be ruled out more rapidly and reliably and can facilitate earlier Emergency Department (ED) discharge. However, minor troponin elevations are now detected in many more ED patients presenting with conditions other than ACS. There is concern that this may lead to a significant increase in requests for cardiology consultation as well as admission and investigation. Recent economic analyses by the Canadian Agency for Drugs and

Technologies in Health (CADTH) suggest that hsTnT may be less cost-effective in ACS patients than conventional TnI assays.

The optimal timing and frequency of hsTnT testing in suspected ACS and the cut-off values that should be applied are presently unclear. Current practice at the Halifax Infirmary is to measure hsTnT at 0 and 3 hours (and if necessary 6 hours) following patient presentation *regardless* of symptom duration. Assuming other clinical features of acute myocardial ischemia are present, hsTnT > 50 ng/L or a ≥ 20 ng/L change during serial sampling is indicative of acute MI.

Crucially, troponin levels must always be interpreted carefully in the context of the overall clinical presentation. Acute MI should never be diagnosed on the basis of troponin elevation alone; a thorough clinical history and physical examination must always be performed. Additional clarity on the utility and appropriate application of hsTnT testing for the diagnosis of ACS will come from ongoing clinical studies.

For an excellent review, please see: De Lemos JA. Increasingly sensitive assays for cardiac troponins: A review. *Journal of the American Medical Association* 2013;309(21):2262-69.

Dr. Sanjog Kalra, Cardiology Resident, Halifax Infirmary

Learning Opportunities

Functional Electrical Stimulation: Applications in Rehabilitation (Upper and Lower Limb), October 4 -5, 2013, Toronto, ON. www.fesair.ca

Vascular 2013, October 17-20, 2013, Montreal, QC. Concurrent conferences: Canadian Stroke Congress, Canadian Cardiovascular Congress, Canadian Diabetes Association Conference and Canadian Hypertension Congress. www.vascular2013.ca

10th Annual Wheelchair Skills Training Workshop, November 4, 2013, Halifax, NS. www.wheelchairskillsprogram.ca

Study of Human Movement, November 22-24, 2013, Halifax, NS. http://cbiaorg.com/course-registration

CVHNS News

24 Hour Transfer Cardiology Service
Capital Health Cardiology Nursing, with the support of CVHNS, offered one day education and shadowing experiences in the catheterization lab to enhance knowledge of the 24 hour transfer service and the necessary preparation of the patient. Sessions were offered in the winter and spring of this year. Nineteen nurses from eight district health authorities representing emergency departments, ICU/CCU and medical floors were able to attend. The key learnings from the experience were expressed very well by one of the June 21st participants: *"What will be most beneficial to me, and what I most want to bring back to my co-workers, is the importance of the relay of information from one facility to another. The paper-trail alone can delay the procedure. I'm not sure that my co-workers are aware of its high priority. This was evident yesterday, when a patient*

arrived for a 24 hour transfer, and hadn't had labs drawn since June 1st (20 days earlier)."

This shadowing experience has allowed sharing of information between referral sites and Capital Health. Many of the participants offered suggestions to improve the patient/family experience. Capital Health will be updating the 24 hour transfer nursing form and have developed a new patient guide. Participants have agreed to share their learnings with colleagues, stressing the importance of having the patient adequately prepared and ensuring that all paperwork is up to date when the patient is transferred. Staff who regularly prepare patients for the 24 hour cardiology transfer service are encouraged to view the videotape of a session offered by CDHA on March 1, 2013. Available on the College of Registered Nurses of Nova Scotia website at http://www.crnns.ca. (See Continuing Nursing Education via telehealth-recorded sessions.)

2013 Certificate of Excellence Award from Hypertension Canada

CVHNS, DCPNS and NSRP are recipients of the 2013 Certificate of Excellence Award from Hypertension Canada for our work to address hypertension, specifically the *Come on Nova Scotia Check It!* Blood Pressure Challenge. The challenge has been successful because of the efforts of many in the province. Thanks to all of you who stepped up to the challenge to help us reach more Nova Scotians.

Blood Pressure Challenge 2013

The 2nd annual ***Come on Nova Scotia...Check It!*** *Blood Pressure Challenge* was held in the month of May (May 17th was World Hypertension Day). The challenge offered Nova Scotians the opportunity to take part in a blood pressure screening program and promoted awareness about blood pressure and what can be done to keep it within a healthy range. This year we partnered with the Heart and Stroke Foundation of Nova Scotia to challenge more workplaces throughout Nova Scotia to participate.

Over 50 organizations requested kits which included instructions on how to implement a challenge as well as education materials for participants. Over half of the participating organizations provided us with details about their challenge. Over 3200 blood pressures were reported checked during the challenges, a 70% increase from the previous year. Eight of nine district health authorities participated in the challenge this year. Kudos to Colchester East Hants District Health Authority who recorded the most blood pressure checks (801) and beat South Shore's record in 2012 by 396 readings! South West Health (635) and Cape Breton District Health Authority (571) came in second and third place. Small monetary prizes have been awarded to these three districts. Funds will be used for planning and implementation of 2014 challenges. CVHNS will be sharing some of the stories and innovative ideas with you in an upcoming newsletter.

Hope you will all be up for the challenge again in 2014!

Heart Failure Documentation Standards

In March, 2012 the Department of Health and Wellness (DHW) held a two day workshop to develop Provincial Interdisciplinary Clinical Documentation Standards. Heart failure was chosen as the first population to develop disease specific documentation standards. These standards focus on the minimum care that should be documented for all heart failure patients.

The intent of the documentation standards is to guide the development of order sets, flow sheets, etc. in both electronic and paper charting. The vision is that, once implemented, these can improve shared care, reduce duplication and drive evidence-based care.

CVHNS led a working group representing acute care, primary health care and heart failure services in the development of the first draft of the standards. This summer, CVHNS held focus groups with additional acute experts to get input on the draft standards. Thank you to all who participated in this process.

CVHNS Re-engineering Project Update

The project is progressing well. There have been four design workshops held which have led to a much greater understanding of what will be required in the new system. A demonstration of the prototype was provided for the data abstractors in September 2013. This will be followed up with some preliminary prototype user testing to ensure our design assumptions are correct before we head into the system development stage. Our current implementation target is late spring or early summer 2014.

DHA News

Impact of Acute Stroke Protocol in Capital Health

The benefit of thrombolytic therapy for acute ischemic stroke declines rapidly over time. Early treatment is best. The Capital Health District Stroke Program has created an Acute Stroke Protocol to facilitate the delivery of intravenous thrombolytic therapy to patients with an acute ischemic stroke. Before implementing the protocol, median door-to-CT and door-to-needle times were well above those recommended by the Canadian Best Practice Recommendations for Stroke Care.

At a provincial forum on Acute Stroke Treatment hosted by Cardiovascular Health Nova Scotia in November 2011, a group of Capital Health nurses, physicians, CT technologists, paramedics and District Stroke Program (DSP) staff designed an algorithm to standardize and expedite the early management of patients who access the Emergency Health Service (EHS) because of a suspected acute stroke. Following the forum, DSP staff further refined the algorithm and coordinated the logistics of implementing it. A database was created to track outcomes.

Paramedics now pre-notify the Emergency Department (ED) when they are enroute with an acute stroke patient and provide an estimated time of arrival. The ED staff then activate the Acute Stroke Protocol through Voice Services who in turn provide this information to the on-call Neurology resident, CT technologist, radiologist and a porter through the hospital paging system. On arrival, the patient stops only briefly in the ED for registration and an assessment by the ED physician to ensure he/she is stable and to assess the likelihood of stroke. The patient is then taken immediately to CT on the EHS stretcher by EHS paramedics. All acute stroke patients now receive a plain head CT followed by CT angiography and CT perfusion studies.

The Acute Stroke Protocol was launched on April 1, 2012. Monitoring data are collected prospectively by the DSP coordinator. In the first year median door-to-CT time has improved from 35 min to 23 min and median door-to-treatment time has been reduced from 93 min to 68 min . This initiative was accomplished solely by standardizing the process of assessment and treatment of acute ischemic stroke; no additional resources were required. The DSP

continues to monitor and improve outcomes. For more information, contact Wendy Simpkin, wendy.simpkin@cdha.nshealth.ca.

Helpful Resources

ACCF/AHA 2013 ST-Elevation Myocardial Infarction Guidelines
O'Gara PT, Kushner FG, Ascheim DD et al. 2013 ACCF/AHA guideline for the management of ST-elevation myocardial infarction: executive summary: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Journal of the American College of Cardiology.* 2013; 61 (4):485-510.

ACCF/AHA Heart Failure Guidelines
Yancy CW, Jessup M, Bozkurt B, et al. 2013 ACCF/AHA Guideline for the Management of Heart Failure. *Journal of the American College of Cardiology.* 2013. http://content.onlinejacc.org.

Blood Pressure Management in Acute Intracerebral Hemorrhage
Anderson C, Heeley E, Huang Y et al. Rapid blood pressure lowering in patients with acute intracerebral hemorrhage. *The New England Journal of Medicine.* 2013; 368(25): 2355-2365.

***New* Hypertension Canada Public Website**
Hypertension Canada recently updated their public website. Visit www.hypertension.ca/public.

Impact of Time to Lytic Treatment on Outcomes in Ischemic Stroke
Saver J, Fonarow G, Smith E et al. Time to treatment with intravenous tissue plasminogen activator and outcome from acute ischemic stroke. *Journal of the American Medical Association*. 2013; 309 (23): 2480-2488.

Measure Up Pressure Down Website and Tools
The American Medical Group Foundation has worked with national partners to provide patients and communities with information and tools that facilitate lifestyle changes, medication adherence, and other keys to successful blood pressure control. Visit www.measureuppressuredown.com.

Multicultural Heart and Stroke Patient Resources
Heart and Stroke Foundation provides culturally appropriate patient resources in a variety of languages. Visit www.heartandstroke.com/site/c.ikIQLcMWJtE/b.3479037.

Role of Intermittent Pneumatic Compression in Stroke
CLOTS (Clots in Legs Or sTockings after Stroke) Trials Collaboration. Effectiveness of intermittent pneumatic compression in reduction of risk of deep vein thrombosis in patients who have had a stroke (CLOTS 3): a multicentre randomized controlled trial. *The Lancet.* 2013; 382: 516-24.

Wheelchair Skills Training Program
The Nova Scotia Rehabilitation Centre offers training to both health professionals and wheelchair users/caregivers to improve wheelchair skills. Visit www.wheelchairskillsprogram.ca.

Innovative Ideas

New Cardiovascular Unit in South West Health
The New Year brought about a significant restructuring in Yarmouth Hospital with the creation of a new patient care unit. Three units, also known as "pods", now make up the 3rd Floor Cardiovascular Unit which is comprised of 32 medical beds and 7 ICU beds to service both cardiac and stroke patients. The staffing complement consists of a 50% ICU manager and a

full-time unit manager for the two medical pods, 2 team leads with RNs, LPNs, CCAs and Ward Clerks. Allied Health teams, including the stroke team, also work on this unit. The new unit officially opened in mid-January following many months of planning, reorganization of physical space and staffing, and restructuring. We continue to promote interprofessional collaboration and a team approach to patient care. Monthly interprofessional team meetings focus on information sharing, team building and revision of the Kardex/Care Plan to further foster multi-disciplinary input and sharing. For more information please contact Kelly Goudey, kgoudey@swndha.nshealth.ca.

Ordering Education Resources and Clinical Forms from CDHA

DHAs may sometimes wish to order resources created in Capital Health, including patient education resources or forms for provincial services such as 24 Hour Cardiology Transfer Service. These forms can be accessed and ordered on the CDHA intranet, with terms of use located at www.cdha.nshealth.ca/about-us/disclaimer-and-terms-use.

For patient education resources, visit http://chdintra.cdha.nshealth.ca/pamphletcatalogue/index.html and select the category of interest. The ordering requisition can be found at the top right hand side of this page. Most pamphlets can be previewed by visiting http://library.cdha.nshealth.ca/chlibrary/Pamphlets.

To obtain CDHA clinical forms, visit http://healthforms.cdha.nshealth.ca, and use the search function to find the relevant form. Most forms can be printed directly, unless labeled "For Reference". If you need "For Reference" documents, go to www.cdha.nshealth.ca/audio-visual-services/printing-letterhead-envelopes and complete the requisition form found there.

For information on printing costs for both pamphlets and forms, email print.cdha@dal.ca.

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