



Windsor Heart Institute

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GET IN TOUCH

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Windsor

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Windsor, ON N8X 3V6

Essex

169 Talbot St South, Essex, ON N8M 1B7

LaSalle

LaSalle Community Healthcare Centre
2125 Front Rd, LaSalle, ON N9J 2C1

Lakeshore

Lakeshore Med Arts
1303 County Rd 22, Suite 120B
Belle River, ON N8R 1A0

Leamington

Central Erie Shores Walk-in Clinic
33 Princess St, Leamington, ON N8H 5C5

Kingsville (COMING 2024)

200 Main St East, Kingsville, ON N9Y 1A6

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Choosing To Care

Dear Colleagues,

We are excited to bring back our newsletter to share updates and insights with our community of practice. We've been incredibly busy growing the Institute to serve our patients better. We have opened two new locations (Lakeshore and Leamington), with a third (Kingsville) to open later this year. With six convenient WHI locations, we've also brought on three more cardiologists with a wealth of experience and specialties.

Our insight article covers the hot topic of Lipoprotein(a) - Lp(a) - via a case study and gives answers to common questions. We welcome your thoughts and suggestions on future topics as well.

Finally, we are incredibly excited to share the news about the launch of Nuclear Cardiology at the Windsor Heart Institute. Please do not hesitate to reach out to find out more.

Stay healthy and happy reading,

Dr. Roland Mikhail
Cardiologist, Windsor Heart Institute

Dr. Dhssraj Singh
Cardiologist, Windsor Heart Institute

Lipoprotein - What's the Fuss?

Dhssraj Singh MD FACC, Advance Heart Function and Clinical Cardiologist
Windsor Heart Institute

There is a resurgence in interest in Lipoprotein(a). Let's discuss this a little more in the context of a case to see what the fuss is about.

61-year-old female who presents for annual physical. She is concerned about her strong family history of cardiovascular disease. Her father had an MI at the age of 51 and mother had a stroke at the age of 49. Fasting lipid profile reveals total cholesterol level of 5.75, triglyceride level of 1.02, HDL level of 1.06 and LDL level of 4.25. Blood pressure is 110/75. HbA1c is 5.8%. UACr is 2.8 (normal <3 ug/ml). Lipoprotein(a) level is measured at 657 (normal < 100).

The patient is concerned and asks you a host of questions with regards to her elevated lipoprotein(a) level:

What is lipoprotein(a) - Lp(a)?

Lp(a) is a type of LDL particle where the LDL-particles apoB are covalently bonded to an apolipoprotein(a) particle.

How often is it elevated in the general population?

An elevated Lp(a) level of >100 can be found in 10% of patients.

How does an elevated Lp(a) level occur?

It's mostly genetically determined. Patients with heterozygous FH have a higher likelihood of having elevated Lp(a), and this further increases the risk of CV disease.

What is the mechanism of cardiovascular events in the context of elevated Lp(a) levels.

It is likely an independent causal risk factor for CV disease.

There are 4 postulated mechanisms in which Lp(a) promotes atherosclerosis:

1. Directly increases arterial wall inflammation.
2. Interrupts fibrinolysis.
3. Via its ability to increase expression of adhesion molecules, it promotes recruitment of monocytes to arterial walls and binds macrophages to promote foam cell formation and deposit cholesterol particles in plaques.

The concentration of Lp(a) determines the risk for CV disease. Higher Lp(a) means higher risk.





How do you treat elevated Lp(a) levels?

As of February 2024, there is no FDA approved treatment specifically designed to target an elevated Lp(a) level. The use of Niacin can technically lower Lp(a) levels, although there are no prospective studies that show clinical benefit of lowering Lp(a) with Niacin in patients with high Lp(a). Retrospective and subgroup analysis that showed effects of Lp(a) lowering by Niacin have NOT been shown to reduce clinical outcomes. Lipoprotein apheresis may be an option to lower Lp(a) but consistent evidence of this improving clinical outcomes prospectively is lacking.

Are there upcoming treatment options for patients with high Lp(a) levels.

Yes. Plenty. These include antisense oligonucleotide agents and small interfering RNA molecules.

If there is no direct treatment, why test for this? Would it change my patient management?

The presence of elevated Lp(a) in the context of elevated CV risk presents an opportunity to tighten the control of all risk factors. This includes:

1. Lowering LDL to target doses with statins, ezetimibe, PCSK9i. This remains the main target for treatment in patients with elevated Lp(a).
2. Control of other risk factors such as DM, HTN, diet, exercise.

Who should get tested for Lp(a)?

1. Everyone at least once in their adult life.
2. All patients with premature CV disease.
3. Patients with heterozygous FH.

I've tried to keep this succinct and easy to read. I hope this write up helps fill some gaps when it comes to the topic of Lp(a). If you have any questions or suggestions to help us improve this article, please email me directly at: d.singh@windsorheart.org



Bringing the Forefront of Nuclear Cardiology to our Community

Dhssraj Singh MD FACC, Advance Heart Function and Clinical Cardiologist
Windsor Heart Institute

In the Beginning...

When we set out to build the Windsor Heart Institute, we envisioned an organization that offered the best we could afford in terms of cardiovascular care to our community of patients under one roof. Our “battle” when we first started was rudimentary by today’s standards: we simply wanted to offer electronic reporting for our 2D echocardiograms. As things went on, we knew there were many opportunities to improve further, simply by being able to bring what was widely available elsewhere to Windsor. And so we did, slowly, initially with simple things like introducing “bubble” studies to detect intracardiac shunts, and later contrast echocardiography to delineate technically difficult studies, strain imaging with speckle tracking to assess myocardial performance on a granular level etc. We also worked on improving access to patients by providing same day consultation for very abnormal studies, the rapid program during COVID 19 for physicians who needed instant help. Even further, we started working with the Best Care program to start the first heart function clinic in Windsor. The principle was that if we felt frustrated that we couldn’t provide a certain service to our patients, we tried to have creative

solutions. While we have made significant headway in the offerings we provide (particularly when compared to when we first started), there is still room for improvement.

That’s why it was quite special to be involved in bringing Nuclear Cardiology under our umbrella, and to offer it as part of our Institute.



DSPECT Camera Room

Nuclear Cardiology is a specialty devoted to diagnosing heart disease using small radioactive tracers that decay away very quickly within the body but not before producing detailed images to diagnose ischemia, infarction, hibernating myocardium, ATTR cardiac amyloidosis deposition, etc.

The Camera

We managed to get our hands on the latest D-SPECT camera by Spectrum Dynamics and decided to pick this camera over the many other options for a few reasons. Firstly, the patients are imaged supine and upright. This really helps with the issue of attenuation artifacts that plagues conventional reads. Patients are positioned as they would be on a dentist chair, which is very helpful to those with claustrophobia or who are unable to lay flat. Gut and breast attenuation is minimized.

The camera itself uses a proprietary Trucorr system. I must admit I was fairly skeptical when introduced to this concept. Trucorr is basically an approach that uses Deep Learning to generate attenuation corrected myocardial perfusion images. This negates the need for a supplementary attenuation correcting CT scan (which is traditionally offered in large well-established centres) and hence reduces the radiation dose. Data has been coming in and so far, it's been positive. For example, in a study of 300 Swedish patients for whom their nuclear studies were assessed with and without Trucorr, the overall diagnostic accuracy of MPI with Trucorr to identify patients with any obstructive CAD was 90%, sensitivity 91%, specificity 86%, positive predictive value 97%. This is compared to an accuracy of 87%, sensitivity 94%, specificity 57%, positive predictive value 91% in patients with a similar high quality D-SPECT camera without Trucorr.

This camera also uses CZT crystals that allow for rapid acquisition times and is very helpful in using much lower doses of radiotracers and reducing the radiation exposure while providing excellent images.



MIBI Processing Workstation



DSPECT Camera Front View



MIBI Chem Stress Room

The Team

That being said, an excellent camera alone does not make a nuclear lab a good one. We still needed help with regards to the directing and running of the lab. We knew we needed to work with the best to make this happen. We are immensely thankful to be working with Dr. Kevin Tracey, who has practiced Nuclear Cardiology in the Windsor Essex community for 30 years. He was instrumental in helping us to set up the protocols and the lab. Dr. Tracey did his residency training in Nuclear Medicine at the University of Alberta in Edmonton as well as the world famous Nuclear Cardiology lab run by Dr. Daniel Berman at UCLA in Los Angeles, California prior to being recruited to Windsor in 1990. He has been the Medical Director of Nuclear Medicine and has worked to develop a comprehensive Nuclear Medicine and Nuclear Cardiology program at all 3 Essex county hospitals within the community for over 30 years. In addition to this, we were very privileged to be able to recruit Erin Feil. Prior to joining us at WHI, Erin was the lead nuclear technologist at the Foothills Hospital, Alberta – which is part of the Libin Cardiovascular Institute and the University of Calgary - and has deep experience. The nuclear lab at Foothills remains one of the busiest Nuclear Cardiology labs in the country.



Dr. Kevin Tracey

Harnessing the Benefits Under One Roof

Prior to moving to Windsor, I had spent about 7 years in large academic centres in Cleveland and Kansas City, centres proud to be at the forefront of cardiology in terms of the care that they offered. Centres such as Cleveland Clinic have over 100 years of intense focus in developing the hospital system to be able to provide good care to patients. Physicians were proud of the work they did, and by virtue of the fact they were under a large umbrella, collaborated well with each other between subspecialties and specialties. However, I never quite understood the collaborative magic as it was already a given within the system back in those days. I took it for granted because it was all that I saw and knew.

Even prior to moving to Windsor, I understood clearly that our city was at an earlier stage in developing its medical service offerings. I was and still am actually very impressed with my physician colleagues and how they have navigated difficulties within the system. The vast majority of them were very well trained and are highly competent family physicians, internists, ER physicians and non-invasive, interventional cardiologists etc. They work within the limitations of a growing and stretched system and frequently employ teams that bend over backwards to compensate for system strains and pitfalls.

However, no matter how well trained and competent a physician is, physicians and patients are frequently disadvantaged by a system composed of teams that work in silos. While it is no fault of any specific entity/person, and most likely simply a manifestation of a maturing medical system and the way in which our Ministry of Health provides healthcare, it was not uncommon for a patient to get an ECG in a community laboratory, see a physician in urgent care a few blocks away, get the echocardiogram in the hospital, get an X ray in a community clinic, meet the cardiologist at yet another separate clinic, then get a myocardial perfusion scan in the hospital, before going to the cath lab for another test in London. In fact, this still happens today. If you are reading this as a care provider, you are likely getting flashbacks to a similar situation. EMRs are different. Reliance

on faxes as a communication method is slow (dare I say archaic) to transfer information. There is difficulty reaching colleagues quickly, etc. Despite this, care is still provided, and provided quite well, most of the time. However, there are nuances in care that can be missed when collaboration is not possible under one roof, particularly in more complex cases and disease states.

Offering Nuclear Cardiology under the roof of the institute, by no means fixes the system as a whole - that fact is obvious. That being said, when cardiologists are much closer to the nuclear lab and able to collaborate together, develop and provide feedback to our nuclear medicine colleagues, the opportunity to benefit the patient increases. For example, an elderly woman with a concerning history can get her study the same/next day if there are concerning features - she simply walks across the hall to get started. In another example, an abnormal high risk nuclear stress test ordered by a family physician is dealt with immediately by cardiologists, on site at time of reporting. In a system where

cardiologists have direct control over the booking of both consults and nuclear studies, they are able to influence the system better. The overall system still isn't perfect, by any means, but it is a step in the right direction.

The Patient and the Physician

Ultimately, as cardiovascular specialists, we as an organization cannot lose focus of the fact that our doors open to serve our patients and referring physicians. With the opening of our nuclear lab under our umbrella, this is another step in that direction.

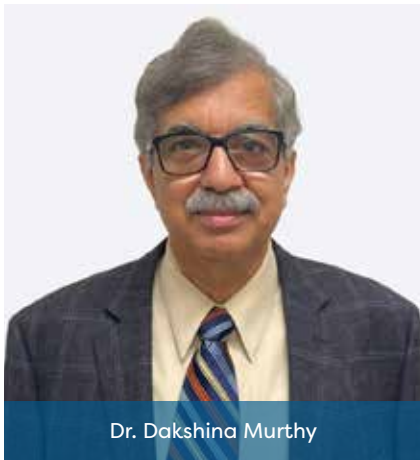
Dhssraj Singh, MD FACC

PS. In the upcoming months, we will be hosting educational sessions on how to pick the right test for the right patient going forward. If you would be interested in attending, or have comments to share, please email me at d.singh@windsorheart.org.

I look forward to meeting you in the near future.



Welcome New Cardiologists Dr. Murthy and Dr. Toma



Dr. Dakshina Murthy

Born in India, Dr. Murthy graduated medical school from Mysore Medical College where he also obtained his Post Graduate Internal Medicine training. He completed the latter at the University of Connecticut in Farmington, CT, where he also finished his Cardiology Fellowship. He did additional training in Echocardiography and Nuclear Cardiology.

Dr. Murthy has been practicing medicine since 1990 working as a Consultant Cardiologist for Indiana Heart Associates, at the WVU Medicine Heart and Vascular Institute in West Virginia, and then moving to Saskatchewan to work for the Regina Qu'Appelle Health Region (now Saskatchewan Health Authority). He later became Director of Non-Invasive Cardiac Imaging and Director of the Heart Function Clinic.

Dr. Murthy's special recognitions include Certification in Cardiology from the Royal College of Physicians and Surgeons of Cardiology and the American Board of Internal Medicine. He is Board Certified in both Echocardiography and Nuclear Cardiology. He is a Fellow of the Royal College of Physicians and Surgeons of Canada, the American College of Cardiology, and the American Society of Echocardiography.

Dr. Murthy came to Ontario to join the Windsor Heart Institute in August of 2023 and settled in LaSalle with his wife Poornima. He has two sons, Vignesh and Shravan.

His special interests include Preventive Cardiology, Congestive heart Failure and Non-Invasive Cardiac Imaging.



Dr. Jonathan Toma

Dr. Jonathan Toma was born in London, Ontario. He graduated from medical school at the University of Toronto in 2009 and has been practicing independently since 2019. Dr. Toma underwent internal medicine training at University of Toronto, Cardiology fellowship at Dalhousie University and Interventional Cardiology and sub-specialized Valvular Heart Disease training at Sunnybrook Health Sciences Centre. He additionally holds a Masters degree in Medical Biophysics from the University of Toronto and underwent a business and engineering training through the Biodesign Innovation Fellowship at Stanford University. Dr. Toma spends his time between clinical activities in the Toronto area and Windsor. He currently practices invasive coronary intervention and transcatheter aortic valve intervention at Southlake Regional Health Centre in Newmarket. In his role as a part of the Southlake TAVI team, he routinely performs transfemoral valve procedures and alternative access cases such as trans-carotid and trans-axillary TAVI. The team performs over 300 procedures annually with excellent technical results. He is able to provide his patients in his practice at the Windsor Heart Institute unique insights into the procedural process and follow-up, as well as timely access to these procedures. He currently represents the only dedicated TAVI operator with a clinical practice in the Windsor area.

He is proud to be a member of both the innovative interventional group at Southlake and the highly-dedicated clinical group at the Windsor Heart Institute. He has been regularly applying his practical knowledge of invasive interventional techniques to better serve the needs of his patients in Windsor.

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In his spare time, he enjoys hiking, cycling, outdoor activities and reading.