

# Prostate Cancer Canada Network – NEWMARKET

Volume 22, Issue 7

April 15, 2017

A support group that provides understanding, hope and information  
to prostate cancer patients and their families.

Topic for the upcoming April Meeting...

## Nutrition, Diets, Healthy Eating Tips...



Jacqueline Hornick, RD

Our speaker for our April 20th meeting is Registered Dietitian Jacqueline Hornick. She is expected to be updating us on the latest recommendations on nutrition, diet and exercise with a special emphasis for prostate cancer patients and survivors.

Jackie is a Registered Dietitian with more than 20 years of experience and has been with Southlake Regional Health Centre for over 10 years working in the Cancer Program and Palliative Care. In addition, she has also been at the Stronach Regional Cancer Centre since its opening in 2010.

Her current areas of practice include systemic, radiation and palliative care in both the Hospital and the Cancer Centre. Her interests include cancer survivorship and nutrition.

**Meeting Date:**

**Thursday, April 20, 2017**

**Place:**

**Newmarket Seniors Meeting Place  
474 Davis Drive, Newmarket**

**Time:**

**6:30 pm to 9:00 pm**

**Prostate Cancer Canada Network – Newmarket  
Newmarket, ON**

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*The Newmarket Prostate Cancer Support Group does not recommend products, treatment modalities, medications, or physicians. All information is, however, freely shared.*

Our speaker in March was Dr. Jack Barkin, the founding partner of Can-Am HIFU and Medical Director. He performed the first Canadian HIFU treatment using the Sonablate 500 machine on March 12, 2006 and has trained over 25 urologists on the proper delivery of HIFU. He is Chief of Staff at Humber River Hospital, past Chief of Urology at that institution as well as the previous Director of Surgery and Surgical Oncology.

He is an Associate Professor of Urology at the University of Toronto. He is also an Adjunct Clinical Professor, Department of Surgery at the University of Toronto. In addition, Dr. Barkin is Director of the Male Health Centre in Toronto, a semi-private specialty clinic that focuses on the diagnosis and management of male sexual health problems and diseases of the prostate. He is the Exec. Editor in Chief of the Canadian Journal of Urology.

This is what Dr. Barkin had to say.



What we are going to do tonight is talk about HIFU (High Intensity Focused Ultrasound) as a treatment option for localized prostate cancer. Unfortunately, lately, certain colleges, like the College of Family Practice, have suggested that doing DRE's and doing the PSA test is not the right thing to do anymore. And as you know, obviously, it is definitely the right thing to do, for the right man at the right time.

Prostate cancer today is still the number one diagnosed cancer in North American men and the second or third most killing cancer. If we want to treat it successfully we need to find it early when we can

offer the most options. If it is localized prostate cancer we can do all kinds of things; we can do surgery, external beam radiation, brachytherapy using radioactive seeds and hormone treatment, and they may use a combination of these treatments. Finally, we can use cryotherapy where we freeze the prostate or HIFU where we cook it.

I was first attracted to HIFU way back in 2004. When I first got involved, interestingly enough, I wound up going to Mexico for training which is unusual, but that was what was being offered at the time. The concern is that there is a chance that surgery

or radiation therapy will fail. Also with radiation therapy there is an increased risk of developing a secondary cancer such as lung cancer.

The five-year biochemical disease free survival (BDFS) outcome comparisons for low to moderate grade prostate cancer is virtually identical for the various treatment options available to the patient. So, if that is the case, then it appears there will always be some recurrence rate. And in doing surgery or radiation we may also cause some sort of dysfunction whether it's urinary or bowel or erectile dysfunction.

When we talk about any kind of cancer treatment it is a question of balance between cancer control and quality of life. We are keeping men alive a lot longer than we used to 25 years ago but if we are not providing you with a good quality of life then that is the trade-off – we have to manage the risk/benefit ratio.

When we look at good prostate cancer treatment, the trifecta or home run is: effective PSA control, so the patient does not die from prostate cancer; continence, with normal urinary control; and preservation of erectile function, if you had good erectile function prior to the procedure itself.

When we look at the outcomes after radical prostatectomy from Sloan-Kettering in New York - one of the most respected cancer centres in the world - only about 53% of the patients wound up with the trifecta – PSA control, continence and erectile function. For erectile function these were the results despite the fact that the surgeons reported that 94% of the men had the nerve sparing procedure, which is the key to preserving erectile function.

If you look at the treatment comparisons for radical prostatectomy vs. IMRT (radiation) vs. HIFU, the cure rates are virtually identical, however, when you look at impotency and incontinency, the scores for HIFU are

much better – and that was the key, that was the thing that attracted me to HIFU in the first place and it has been 11 years since I did the first HIFU case in Canada and first set-up, my clinic on Bay St., which has now been moved to Edward St.

## What is HIFU?

HIFU is a non-invasive – totally from the outside – technique that uses focused ultrasound beams to ablate the prostate gland tissue. At the target it cooks the tissue to 100 degrees Celsius and that will kill the tissue just at the focal point – and that is the key, we are looking just at the focal point.

How do we get that? It is based on the wavelength or frequency of the beam and the energy intensity of the beam. As you know, from a machine stand-point, we can use ultrasound for all types of things – shockwave therapy for kidney stones, there is ultrasound for imaging or visualization, and there is low

intensity shockwave therapy for the treatment of erectile dysfunction which uses ultrasound shockwaves to stimulate new blood flow to the penis for a man suffering from erectile dysfunction. HIFU is based on high intensity focused ultrasound to cook the targeted tissue at the focal point.

## The Physics of HIFU

Basically, it is like what we used to do when we were kids with a magnifying glass to burn a leaf or a piece of paper – it was only at the focal point that it burned the hole.

With HIFU several physical variables affect energy intensity at the target – the attenuation coefficient of the intervening tissue, tissue depth, and ultra sound frequency. Different tissue types and tissue depths

The technology has only gotten better since these studies.				
Select Treatment Comparison				
Treatment	Biochemical Disease Free Rate	Impotency	Incontinency	Cost
HIFU (Focal Gland)	83% <sup>1</sup>	11% <sup>1</sup>	0% <sup>1</sup>	\$25,000
HIFU (Full Gland)	83% <sup>2</sup>	24% <sup>2</sup>	0.6% <sup>6</sup>	\$25,000
Radical Prostatectomy (Robotic)	80% <sup>3</sup>	87% <sup>5</sup>	18.3% <sup>5</sup>	\$25,000 - \$100,000 (Includes side effects)
IMRT	81% <sup>4</sup>	93.9% <sup>5</sup>	9.4% <sup>5</sup>	\$40,000 - \$100,000 (Includes side effects)

Graphic Courtesy of Dr Jack Barkin

affect attenuation, for example, calcifications can reflect energy and increase attenuation. The depth we can reach from the surface of the probe is 3cm or 4cm.

The principals of HIFU involve tightly focused high intensity ultrasonic energy on a small volume of tissue for short periods of time (3 sec.) On either side of the focal point, there is very little temperature change. Individual differences in energy attenuation, absorption and cooling can be monitored visually and power levels customized which is Visually Directed HIFU.

### A Brief History of HIFU

HIFU was originally developed in the early 70's to treat brain cancer. It has evolved over time to include treatment for prostate cancer.

There are now actually two machines that are in use: one is called the Ablatherm which is from France, the other is called the Sonablate 500 from the U.S. Both use the same basic technology and are managed from a central computer console. There are not that many machines in Canada. A spinal anesthetic is used so you don't feel anything from the waist down.

For a variety of technical reasons, I prefer and use the Sonablate 500. These reasons include: superior machine focal point, better image quality, better nerve detection capability, smaller probe size, greater power adjustment flexibility, overall precision, superior safety features and the lack of the need for a TURP (Transurethral Resectioning of the Prostate) beforehand because we can treat larger prostates. The critical dimension is the height of the prostate which for the Sonablate 500 is 4cm from the probe which is

positioned in the rectum.

HIFU is a treatment that can be repeated.

### Patient Selection

To whom should we be offering this treatment? The ideal patient is the T1 patient with the cancer localized to his prostate – T1 to T3 with a Gleason score of 6 or 7. A prostate gland up to 40 – 50cc volume can be treated with the Sonablate 500 – the ideal size is less than 40cc.

Depending on patient circumstances, like age, stage, grade and the possibility of local extension, I have encouraged countless patients over the years that radiation may be the better option. The key is that if you do HIFU treatment and it does fail, you haven't burned the bridges to surgery or radiation as follow-up treatment. The quality of life is much better with HIFU treatment because it is a non-invasive outpatient procedure – no cutting; you walk in and you walk out 3 to 4 hours later, and are literally back to work the next day.



Photographs Courtesy of Dr. Jack Barkin

### Pre- and Post-Op Considerations

Prior to treatment, because it is a local spinal anesthetic, the patient should have general medical clearance, an EKG and CXR, urinalysis, and an enema or two the day before, as well as clear fluids only the day before.

In terms of pre-op education, the key thing is the catheter – because of the treatment, we expect swelling in the prostate, especially if it is a total ablation. Until the tissue is sloughed off in the urine, we need to put in

a super-pubic catheter which goes through the skin of the abdomen directly into the bladder. It is a thin tube with a valve on it which is left open (and drains into a bag.) After about two weeks you turn off the valve, let the bladder fill and then pee, and then open up the valve and see how much urine is left behind (in the bladder.) Once the residual urine is less than 50cc to 100cc on a consistent basis then we say it is time for the tube to come out. If we are doing a focal procedure then we use a Foley catheter in the penis.

All anticoagulant medication, including ASA, must be stopped prior to the procedure.

Of course, after the procedure we do everything we can to ensure there are no problems. We administer antibiotics before and after the catheter removal, so we suggest antibiotics the day before, the day of, and the



day after the removal of the catheter. We suggest an anti-inflammatory to reduce any swelling faster. We suggest Flomax for 30 to 60 days after the procedure to help with urine flow. If there are bladder spasms, we prescribe an anticholinergic,

daily for 7 days. And, if a man was perfectly functioning beforehand, we prescribe Cialis to begin after catheter removal, to be taken every other day to encourage penile rehabilitation.

## HIFU Clinical Results

In terms of results, based on 25,000 treatments, 2014 data showed that the negative biopsy rate after one year was 91%, biochemical disease free rate (PSA) after 5 years was 97% and 84% showed a PSA nadir after visually directed HIFU that was less than 0.2 ng/ml which is equivalent to surgery, and the cancer recurrence rate was 5%.

## Conclusions

HIFU can successfully treat more than 50% of patients without any major side effects. Adjuvant treatment was required for 22% of patients with good tolerance and success. No disease related deaths were reported. Using HIFU (Sonablate®500), it has been found that outcome is positively associated with a lower baseline PSA; lower PSA nadir; lower Gleason score and lower tumour stage.

## Salvage HIFU

A study was conducted to evaluate the efficacy and safety of salvage HIFU therapy for locally recurrent prostate cancer after primary HIFU or EBRT treatment. The results demonstrated that salvage HIFU is an effective treatment option for locally recurrent prostate cancer after primary HIFU or EBRT. Morbidity related to salvage HIFU therapy was lower than other types of salvage therapy.

## The Risk of a Fistula

One of the biggest concerns with prostate cancer treatments, including HIFU, is creating a fistula, where you burn through the wall of the rectum which allows bacteria from the rectum into the abdominal cavity which is bad – it can happen but the risk with the HIFU procedure is minimal.

Another follow up study looking at 10-year cancer-specific survival and 10-year metastases-free survival after HIFU treatment showed excellent results in the range of 98 to 100% cancer free.

## Focal HIFU Therapy

If a patient in Canada had a high PSA and a positive DRE, we used to do an ultrasound-guided biopsy – the standard was 12-cores, two sides to the prostate, six zones within each side – that's our standard approach. Then, depending on what was found, you could decide



## Summary

In summary, I got involved with the HIFU procedure in 2004 in Mexico and was approved and performed the first treatment in Canada in March of 2006. My main partners are names you will certainly recognize – Drs. Neil Fleshner, Laurie Klotz, Tony Finelli, and Mike Robinette – all of whom I trained and are my full partners. We are all academic and full professors. We have treated 1,200 patients to date. We also have Drs. Hershorn and Elterman involved with our clinic.

The biggest evolution is to the focal HIFU which is better for the patient in that there is less morbidity and faster recovery and that is done with the MRI.

Not all patients are cured regardless of the primary “curative” option – surgery, radiation, and brachytherapy. I had one patient who had his cancer return 17 years after a radical prostatectomy.

Most men are concerned with morbidity and quality of life as well as cure rate.

HIFU is a non-invasive, outpatient alternative therapy for localized prostate cancer treatment that affords minimum morbidity and comparable short and long-term cure rates.

on treatment – radiation or HIFU or something else.

For the last 5 years or so we have gotten away from that. In the U.S. now, if there is a high PSA reading, instead of the biopsy they will do an MRI, and only if the MRI results are positive, they will do a targeted biopsy, focusing only on the suspicious areas identified by the MRI. We can then do focal treatment targeting only the areas of the prostate that have the cancer. If I do a focal HIFU treatment I will treat with a Foley catheter (not the super-pubic catheter) and the recovery is faster with less morbidity, less chance of erectile dysfunction, less chance of any involvement with the urine at all because we are doing so little.

Focal HIFU has the same type of cure rates (as full ablation) and even a better potency rate – 24% for the whole gland vs. only 11% of erectile dysfunction for focal therapy with 0% incontinency.

### The Cost of HIFU Treatment

In the U.S., the procedure is \$25,000 USD for both the full and the focal treatment. In Canada, the cost of the total ablation is \$22,500 CAD, and the partial ablation is \$19,500. Unfortunately the treatment is not covered by OHIP – it is approved but not insured.

## Q & A

### Q: What do you do with a large prostate?

A: You could do a TURP to reduce its size or you could use a Lupron or Zoladex injection, which will shrink the prostate by 30 to 40% after about 3 months. Testosterone makes prostate cancer grow so these drugs that we use stop the production or the uptake of testosterone. It's like taking the fuel away from the fire – it doesn't cure the patient but it will suppress the cancer sometimes for many years.

With focal HIFU you can treat only the areas of concern. If, for example, your prostate biopsy showed a small number of Gleason 6 tumours and a couple of Gleason 7 tumours, you could treat only the Gleason 7 tumours and leave the Gleason 6 behind and just watch it – revert to active surveillance.

### Q: What about BPH and prostate cancer together?

A: You can treat the two diseases simultaneously but differently. Depending on the circumstances you can take medication for the BPH – the prostate “shrinkers”, Avodart or Proscar – and you can treat the prostate

cancer based on the stage and grade.

**Q: I am weighing my treatment options and I have read about proton treatment and a treatment called ViewRay ([www.viewray.com](http://www.viewray.com)) that uses MRI guidance. Can you comment on those treatments?**

A: They are two different treatments: proton beam is a type of radiation – proton beam radiation; the other one you mentioned is light-activated focal treatment for prostate cancer where the patient is given an injection of a specific (cancer-killing) dye that binds to the cancer. You focus a laser beam on the prostate and where the dye has adhered to the cancer cells, it becomes activated and that is what is supposed to kill the cancer because it is bound and has been activated. The treatment has been 10 years in development and has finally been approved at the FDA level. I don't know that it is commercially available at the present time and the same with the proton treatment.

**Q: Can you take Cialis and Viagra at the same time?**

A: Yes. Cialis and Viagra both work the same way; they are called PD5 inhibitors. What happens with sexual stimulation is that there is a release from the nerve endings of nitric oxide. Nitric oxide opens up blood vessels. The problem is that the nitric oxide is broken down very quickly by Type 5 phosphodiesterase, an enzyme that is present throughout the body. Viagra, Levitra and Cialis inhibit the release of the Type 5 enzyme so the nitric oxide is not broken down, and therefore promotes more blood flow to the penis allowing erections.

So you may take Cialis on a daily basis and on the days you want to have sex you take Viagra to give yourself a boost.

And, since you have opened the discussion, there is another Low Intensity Ultrasound Shock Wave therapy we offer. We have a machine called the ED1000 that helps with erectile dysfunction. Basically it is 12 treatments over a period of 9 weeks – 3 weeks on, 3 weeks off, 3 weeks on. Low intensity ultrasound shock waves – not electrical shockwaves – that take about 20 minutes per treatment. We are showing an 82% response rate where we restore erectile function. The results post-radical prostatectomy weren't as good, but we could still do something in conjunction with Cialis. The 12 treatments cost \$3,000 and again not covered by OHIP.

**Q: The financial benefits of HIFU treatment to our provincially funded healthcare system seem fairly obvious; is there a reason why HIFU treatment is not covered by OHIP?**

A: A very astute observation, but it just shows how our government is so segmented. There are different silos – Ministry of Health, Finance, etc. – and these days, since 83% of the medical procedures done in the province are outpatient procedures, they are just not buying the argument that you are freeing up hospital beds or putting someone back to work sooner which is a CRA, not a Ministry of Health issue.

**Q: I was just wondering about the technology involved – for example, we know how much radiation technology precision has improved recently – is your technology updated?**

A: Absolutely. There have been significant improvements over the years from allowing multiple views, and moving from 2D- to 3D-imaging, and Tissue Change Monitoring (TCM). A Doppler has been added so we can monitor the nerve bundles and spare the nerves to the penis thereby preventing erectile dysfunction.

The most recent improvement is called MRI fusion where we can superimpose your MRI image onto my ultrasound image which is ideal for focal therapy. Over the years there have been lots of changes and improvements.



## ~ ~ ~ Notes from The Chair ~ ~ ~

I hope everyone is enjoying the long-awaited spring weather. We didn't really have much of a winter but, once it got a hold it just didn't want to give up. We are hoping that is also your attitude when it comes to winning the fight on your journey.

One critical component in helping you to fight your fight is a good diet. We have Jackie Hornick presenting to us this week. Jackie last presented in November, 2014. We thought it would be a good idea to revisit this topic - both to reinforce the habits of those who were at her last presentation but, more so, for our new members who have embarked on their own journey more recently.

Last month we introduced you to a new exercise program supported by TrueNTH and funded by Movember. We hope that a number of you were able to take advantage of this special offer. Staying active and leading a physical lifestyle helps to give you the energy necessary to overcome some of the effects of treatment.

Dan found some excellent links dealing with fatigue, exercise, and other related topics. He shared them with the executive but, I think they may be worth including in the newsletter.

### **Cancer Related Fatigue**

DocMikeEvans

Published on Apr 11, 2013

<https://www.youtube.com/watch?v=YTFPMYGe86s>

Thanks to the Sunnybrook Odette Cancer Centre and Canadian Cancer Society for their support.

<http://sunnybrook.ca/>

Follow Dr. Mike for new videos!

<http://twitter.com/docmikeevans>

Dr. Mike Evans is founder of the Health Design Lab at the Li Ka Shing Knowledge Institute, an Associate Professor of Family Medicine and Public Health at the University of Toronto, and a staff physician at St. Michael's Hospital.

And if you find this worthwhile, here's Dr. Mike Evan's channel:

<https://www.youtube.com/watch?v=Iqh82KkwqqU>

for other topics to explore.

And for more information about Dr. Mike Evans:

<http://www.reframehealthlab.com/about/dr-mike-evans/>



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