Scientists pioneer new treatment for prostate cancer

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Scientists at Sunnybrook Research Institute (SRI) are developing and commercializing a promising novel therapy for the treatment of prostate cancer that may offer patients a faster and more precise treatment than existing clinical alternatives, with fewer side effects.

The new treatment--magnetic resonance imaging (MRI)-guided transurethral ultrasound--uses heat from focused ultrasound to treat cancer in the prostate gland precisely while sparing the delicate noncancerous tissues around the prostate essential for healthy urinary, bowel and sexual function.

Sunnybrook researchers Dr. Michael Bronskill and Dr. Rajiv Chopra have licensed their innovation and formed Profound Medical Inc., which will develop the technology for clinical use.

Unlike surgical removal of the prostate, the treatment is minimally invasive and could be performed without a lengthy hospital stay. In preclinical studies, treatment takes less than 30 minutes. The therapy, on which clinicians at Sunnybrook will conduct preliminary testing in preparation for a clinical trial, could help limit the number of men living with the common, debilitating and often permanent side effects of surgery and radiation treatments currently used. More of these invasive therapies are being performed now because improved awareness among younger men has converged with better clinical detection tools.

Profound's clinical development is targeted at treatment that reduces the

high level of incontinence and impotence associated with current, invasive treatments. The therapy involves two different and naturally incompatible technologies, ultrasound and MRI, which Bronskill and Chopra spent 10 years making compatible. "You have to make an ultrasound heating applicator work inside a magnetic resonance imager, without the two technologies interfering with each other," says Bronskill, who is a professor at the University of Toronto. "The prostate cancer site is a natural for this technology because it's surrounded by structures you want to spare."

Dr. Laurence Klotz, chief of urology at Sunnybrook Health Sciences Centre, and a professor at the University of Toronto, says that a noninvasive therapy for early, localized prostate cancer could improve the quality of life of hundreds of thousands of men. "The key to effective noninvasive treatment is accurate imaging of the target organ and of the effects of the treatment on tissue. In that respect, MR-guided ultrasound has many potential advantages over transrectal ultrasound-guided focused ultrasound, now approved for use in Canada," says Klotz.

The scientists' creation of this clinically viable product was done in a setting committed to commercialization. "At SRI, we are dedicated not only to developing new and better therapies and technologies, but also to getting those discoveries to our patients," says Dr. Michael Julius, vice-president of research at Sunnybrook. Profound Medical Inc. is the third imaging-technology company to be spun out of research at SRI in recent years. The other two are VisualSonics Inc. and Sentinelle Medical Inc.

Source: Sunnybrook Health Sciences Centre

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