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Application of laser light to treat prostatic proliferative diseases in the ageing man

Simone Chevalier
McGill University, Canada

The prostate is the site of two prevalent proliferative diseases in aging males, benign prostatic hyperplasia (BPH) and prostate cancer (PCa). Etiologic causes are not well defined. While both diseases may be left untreated, they often require pharmacological or surgical interventions; for instance to alleviate lower urinary tract symptoms in BPH and reduce risks of blockage and kidney damages; and to treat cases of intermediate and high risk cancers that would progress to the lethal metastatic stage. There is currently a window to propose minimally invasive therapies as alternative interventions for each disease. Photodynamic therapy (PDT) with soluble photosensitizers such as chlorophyll derivatives, which rapidly become cytotoxic upon activation by laser light appears as an option. We optimized PDT procedures with Tookad-soluble® (WST11) using the canine model, a unique mammal species developing these diseases when aging. Because benign nodules occur mostly in the peri-urethral (transition) zone of the human prostate, we approached BPH through an endoscopic procedure, introducing one laser fiber in the urethra. To recapitulate prostate tumors found in peripheral and central zones, laser fibers were inserted in the parenchyma of each prostate lobe. Close monitoring during PDT and follow up, together with ultra-sound prostate imaging, urodynamic measurements and histopathology revealed the safety and efficacy of both procedures. They are highly promising to widen the prostatic urethra and improve urodynamic parameters in men with BPH and to ablate significant portions of the prostate in patients with localized PCa.

Biography

Simone Chevalier completed her PhD in Biochemistry at "Université de Montréal", Montréal, Canada, and did her Post-doctorate training in Biochemistry and Endocrinology at the University of British Columbia (Vancouver, B.C.) and Maisonneuve-Rosemont Research Centre (Montréal), respectively. She is Associate Professor in Surgery (Urology) at McGill University and holds affiliations in Medicine and Oncology. She is the McGill Urology Director of Research and Director of the PROCURE Québec Prostate Cancer Biobank. Her career has been devoted to prostatic proliferative diseases. She has published more than 90 papers in reputed journals and 350 presentations at national and international meetings.

simone.chevalier@mcgill.ca