Executive Protocol Summary

ProstaCare Water Electrolysis System for the Treatment of Benign Prostatic Hyperplasia

CIP #: PC 1.0, Version: 2.1, Date: January 1, 2018

Sponsored by: ProstaCare Singapore Pte. Ltd.

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PROTOCOL SUMMARY

Study Title and Number	Prostafix Water Electrolysis System for the Treatment of Benign Prostatic Hyperplasia Prostafix Protocol # PC 1.0
Device Name	prostaFix Water Electrolysis System
Intended Use	The prostafix Water Electrolysis System is indicated for the treatment of lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH) in men > 45 years old with prostate volumes between 25 cm^3 and 55 cm^3.
Purpose	To evaluate the safety and performance of the prostafix Water Electrolysis System in relieving symptoms of urinary outflow obstruction secondary to Benign Prostatic Hyperplasia (BPH).
Primary Objectives	**Effectiveness**: To demonstrate that BPH symptoms are improved by 6.5 points or more after use of ProstaFix as measured by the IPSS on all subjects at 3 months. **Safety**: To demonstrate that the Prostafix treatment does not cause unacceptable rates of serious adverse events (SAE) associated with use of the device.
Secondary Objectives	- To characterize changes in BPH symptoms, Qmax and PVR, sexual function, and quality of life (QOL) from baseline. - To characterize post-treatment recovery measuring treatment tolerability and medication requirements. - To measure durability at 6- and 12-months following treatment and up to 60 months after treatment for long-term durability. - To characterize prostate size and necrosis via MRI. - To characterize all adverse events (AEs) and technical observations on device performance.
Key Inclusion Criteria	- 45 years of age or older with a diagnosis of BPH, - International Prostate Symptom Score (IPSS) of 12 or greater, - Prostate volume between 25 cm^3 and 55 cm^3, - Uroflow with peak flow rate (Qmax) no greater than 13 ml/sec with a corresponding voided volume of at least 100 ml and a post void residual (PVR) of 250 ml or less. - Prostate length, width and height must be at least 3.2 cm, 3.5 cm and 2.5 cm, respectively
Key Exclusion Criteria	- Obstruction due to an enlarged middle lobe, central gland or significant transverse asymmetry, - Subjects on 5 alpha reductase inhibitors (5-ARI) (inclusion only if washed out prior to treatment), - Subjects on alpha blockers (inclusion only if washed-out before treatment), - Active urinary tract infection at time of treatment, - Interest in maintaining fertility, - Past history of urologic surgery or minimally invasive treatment for BPH, - History of or current medical conditions contraindicating elective urological procedures.
List of Investigators and Investigational Sites	- Dr. Henry Ho Sun Sien, Singapore General Hospital - Dr. Tiong Ho Yee, National University Hospital - Prof. Peter Gilling, Urology BOP Consultant Urologists

1 STUDY DESIGN

1.1 Study Objectives

This study measures the safety and performance of the prostaFix Water Electrolysis System (ProstaCare), a minimally invasive treatment (MIT) that uses direct current to relieve symptoms of BPH. Benign Prostatic Hyperplasia (BPH) is prostate growth which may obstruct the urethra, inhibit urine flow and increase urinary symptoms.

1.2 Study Design

The study design is a prospective, multicenter, multinational, single-arm clinical investigation. A total of up to 50 subjects will be enrolled at 2-5 sites. Subject follow-up visits will be conducted at 2-day (if catheterized post procedure), 1 and 6 weeks, and 3 months to reach the primary endpoint visit analysis. The first few subjects will have fluoroscopic confirmation of electrodes placement before treatment, then fluoroscopy is optional. The first 10-15 subjects will have MRI studies at baseline, and the 1 week and 3-month follow-up visits to assess subject safety and treatment effect, then MRI is optional. Subject discomfort will be assessed throughout the treatment using VAS. Follow-up visits will assess BPH symptoms, uroflowmetry parameters, quality of life and adverse events.

Subjects will continue to attend follow-up visits at 6 months and 12 months after treatment to demonstrate treatment durability. After completion of their 12-month follow-up visit, subjects will have the option to continue study participation into the long-term follow-up phase with a yearly visit up to 5 years post treatment.

2 ENROLLMENT CRITERIA

2.1 Inclusion Criteria

Subjects must meet all of the inclusion criteria to participate in this study.

1. Subject must be a man of 45 years of age or older (BPH traditionally occurs in older men).
2. Subject must have an IPSS score of 12 or greater.
3. Subject must have a diagnosis of BPH in the medical records.
4. Subject must have an eligible uroflow with unadjusted or adjusted peak flow rate of equal to or less than 13 ml/sec with a corresponding:
    a. voided volume of at least 100 ml, and
    b. PVR of 250 ml or less.
5. Subject must have a prostate of 25-55 cc, inclusive as measured by ultrasound.
6. Subject must have prostatic sagittal length of 3.2 cm or greater, as measured by ultrasound.
7. Subject must have a prostatic transverse width of 3.5 cm or greater as measured by ultrasound.
8. Subject must have a prostatic anterior-posterior height of 2.5 cm or greater as measured by ultrasound.
9. Subject must have the ability to understand and consent to participate in this study.
10. Subject must be willing and able to participate in follow-up evaluations.

2.2 Exclusion Criteria

Subjects meeting any of the exclusion criteria listed at baseline will be excluded from participation.

1. Subject has obstruction due to an enlarged middle lobe or significant central gland of the prostate.
2. Subject has significant transverse asymmetry.
3. Subject has an implantable pacemaker or cardiac defibrillator.
4. Subject has a penile implant.
5. Subject has a history or current diagnosis of prostate cancer or bladder cancer.
6. Subject has an active urinary tract infection.
7. Subject has a neurogenic, decompensated or atonic bladder.
8. Subject has urethral strictures or muscle spasms that prevent insertion of the catheter.
9. Subject has bleeding disorders or anticoagulation meds unless anti-platelet meds has been discontinued for at least 7 days.
10. Subject has had previous rectal surgery other than hemorrhoidectomy.
11. Subject has had previous radical pelvic surgery or pelvic irradiation.
12. Subject is interested in maintaining fertility.
13. Subject has had previous surgical or minimally invasive procedure to treat symptomatic BPH.
14. Subject has alpha blocker use for the treatment of BPH within 14 days of treatment date.
15. Subject has 5ARI use within 3 months of treatment date.
16. History of medical, surgical or other conditions that, in the opinion of the investigator, would limit study participation.

3 SCHEDULE OF EVENTS

Table 1: Tests and Evaluation Schedule with Visit Windows

Parameter	Baseline -180 to 0 days	Baseline -60 to 0 days	Enroll - ment and Treatment (day 0)	As Indicated 2 day +3 /-1 days	1 week + /- 2 days	6 weeks + /- 7 days	3 months + /-14 days	6 months + /- 30 days	12 months + /-30 days	24, 36, 48, 60 months + /-30 days
Consent		X								
Medical Urological Hx		X								
Medication Review		X	X	X	X	X	X	X	X	X
IPSS		X			X	X	X	X	X	X
IIEF and MSHQ-EjD		X				X	X	X	X	
Uroflowmetry		X			X	X	X	X	X	
Post Void Residual		X			X	X	X	X	X	
Physical Exam +DRE		X								
PSA	X						X	X	X	
Urinalysis		X	X	If Indicated	If Indicated	If Indicated	If Indicated	If Indicated	If Indicated	
Urine Culture		X		If Indicated	If Indicated	If Indicated	If Indicated	If Indicated	If Indicated	
Ultrasound	X				If Indicated	In indicated	Optional	Optional	Optional	
Cystoscopy	X									
MRI		If Indicated			If Indicated		If Indicated			
Inclusion/Exclusion			X							
ProstaCare Therapy			X							
Fluoroscopy			If Indicated							
Pain VAS			X							
Voiding Trial			If Indicated	X	If Indicated					
Adverse Events			X	X	X	X	X	X	X	X
Device Deficiencies			X							
Risk Benefit Assessment							X		X	
Additional BPH Treatment Review					x	x	x	x	x	x