J Surg Res 2022; 5 (2): 260-263 *DOI: 10.26502/jsr.10020219*

Research Article

Research Protocol: Prehabilitation for Holmium Laser Enucleation of the Prostate (HoLEP)

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Received: 24 March 2022; **Accepted:** 29 March 2022; **Published:** 02 May 2022

Citation: Mubariz Mahmood, Daniel Cottam, Momen Sid Ahmed, NKwam Nkwam, Tara Rampal. Research Protocol: Prehabilitation for Holmium laser enucleation of the prostate (HoLEP). Journal of Surgery and Research 5 (2022): 260-263.

Abstract

Surgery causes a physiological and psychological stress response which can lead to a decline in functional capacity. The adoption of prehabilitation into existing pathways can improve postoperative outcomes. HoLEP (Holmium laser enucleation of the prostate) is a minimally invasive surgical treatment for men with benign prostatic hyperplasia. We aim to assess the feasibility of providing multimodal prehabilitation to patients with an ASA score of 2 or more. The prehabilitation interventions include supervised cardiopulmonary exercise, muscle conditioning, dietary/lifestyle advice and exploration of psychosocial needs. Patients will also receive a medication review by a specialist pharmacist. Compliance is to be assessed with a phonecall 2 weeks into the program and 6 weeks post procedure. Viability of the project will be determined by the ability of the organisation to deliver and sustain the program. The data to be collected will include project costs, time spent, patient satisfaction, length of stay, early and later surgical complications and daycase rate. This project will assess feasibility of perioperative optimisation programmes for non-oncology surgical pathways for maximal patient benefit.

Keywords: HOLEP; Prehabilitation; Prostate; BPH; Daycase; Peri-operative; Medicines optimisation

Introduction and Background

Surgery causes a physiological and psychological stress response which can lead to a decline in functional capacity [1]. One strategy to attempt to mitigate this in more high risk surgeries has been the introduction of perioperative care programs, such as enhanced recovery after surgery, which have demonstrated reductions in inpatient hospital length of stay and improved postoperative outcomes [2,3]. More recently prehabilitation has developed as a concept aimed at optimising perioperative risk factors and increasing patient's functional capacity prior to surgery, which has been shown to improve pre-operative physical function and consequently improve postoperative outcomes such as length of stay, complications and readmission rates post-surgery, with associated healthcare cost savings [4,5]. HoLEP (Holmium laser enucleation of the prostate) is a minimally invasive surgical treatment for men with symptomatic benign prostatic enlargement/hypertrophy (BPH). There is an increasing drive towards daycase surgery being the standard of care in men undergoing BPH procedures despite increasing age and comorbidities in this population, and prehabilitation pathways may be a viable approach to achieve this aim. However, although multimodal prehabilitation programmes have been successfully implemented in a number of surgical and cancer pathways, the majority of evidence for improved outcomes largely focuses on major cancer resections [6-8]. Although some elements of prehabilitation have been described in this patient group, for example the impact of pre-operative pelvic floor exercises on urinary incontinence rates [9], to our knowledge there is no evidence on the application of multimodal prehabilitation approaches on urology patients undergoing HoLEP. In the process of determining whether such an approach to prehabilitation will be of benefit in this patient population, our group has elected to undertake a pilot study to assess the feasibility of implementing multimodal prehabilitation interventions prior to surgery.

Objective

To describe a multimodal prehabilitation protocol which will be implemented to assess the feasibility of prehabilitation as part of the HoLEP treatment pathway at a district general hospital.

Design

The project named POSH (Preoperative Optimisation in Surgery for HoLEP) is a prospective, cohort feasibility study. Urology patients that are listed for HoLEP are to be recruited based on inclusion criteria. The generic date of surgery is then set to be 8 weeks post prehabilitation recruitment. This will allow for sufficient time for the recommendations to be implemented and have the intended effect. Patients are to be consented for inclusion into the study and requested to attend an initial prehabilitation assessment session. This session will provide joint assessment by a Consultant Anaesthetist and Specialist Peri-operative Pharmacist.

Setting

A United Kingdom district general hospital.

Participants

We aim to recruit a total of 25 patients with an ASA score of 2 or above.

Interventions

Referred patients will be given targeted and specific advice on cardiopulmonary exercise and muscle conditioning. Fast track referrals will be made to a partner community exercise provider for supervision and to encourage compliance. Advice regarding

nutrition, smoking and alcohol cessation/moderation and addressing any psychosocial needs are provided. Patients will also receive a medication review with a primary aim of peri-operative medication optimisation and secondary aim of medication rationalisation. Compliance and adherence to the exercise, in particular pelvic floor exercises; diet and mental wellbeing programme will be assessed by a phone call at two weeks into the programme and six weeks post-surgery. The two-week post-recruitment call will also ensure investigations requested in the prehabilitation clinic are completed and results reviewed.

Outcome Measures

Viability of the project will be determined by the ability of the organisation to deliver and sustain the program. Project costs, time spent, patient satisfaction and engagement will be logged. Patient reported outcomes (PROs) and the use of existing organisations resources will be reviewed. Surgical outcomes to be recorded will include length of stay, early and later surgical complications and daycase rate. Our aim would be to encourage adoption of perioperative optimisation programmes in non-oncology surgical pathways for maximal patient benefit.

Declarations

Availability of data and materials

Not applicable

Competing interests

The authors declare that they have no competing interests

Funding

Not applicable

Authors' contributions

TR and MM conducted the joint clinics. MM wrote the research protocol with input from TR and NN. NN was the performing surgeon. DC and MA arranged all the scheduling, investigations and follow ups.

Acknowledgements

Not applicable

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