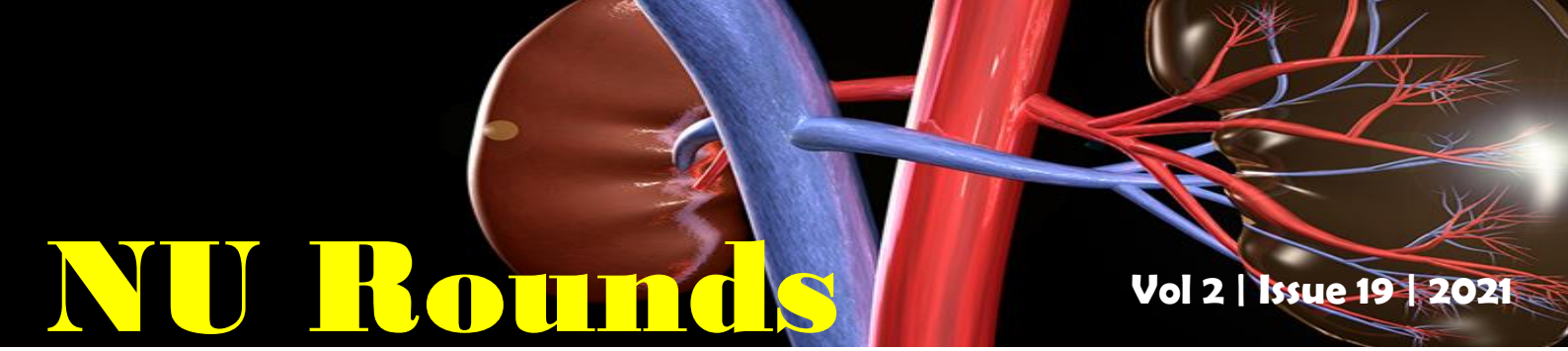

NU Rounds

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Dear Doctor,

Greetings from Micro Labs limited. We are happy to bring you "**NU Rounds**" which contains latest and interesting news in the field of Urology.

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- Effects of pre-emptive pregabalin and multimodal anesthesia on postoperative opioid requirements in patients undergoing robot-assisted laparoscopic

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

Medical Team, Micro Labs Ltd

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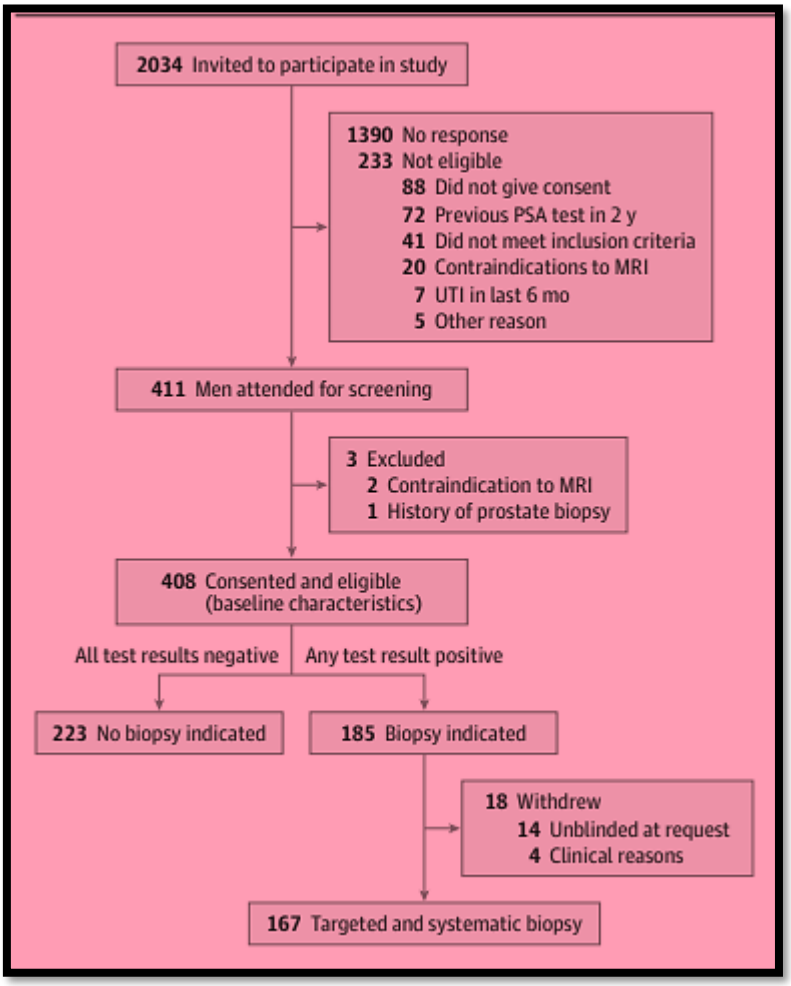
Population-Based Prostate Cancer Screening with Magnetic Resonance Imaging or Ultrasonography The IP1-PROSTAGRAM Study

Introduction

For prostate cancer a population screening program is not currently recommended. A PSA test can reduce the relative risk of mortality from prostate cancer by approximately 20% when repeated at 2- to 4-year intervals. In prostate cancer, various imaging modalities are available, but evidence is limited to use in men within secondary care rather than the general population. Multiparametric, contrast enhanced magnetic resonance imaging (MRI) is a diagnostic test with good accuracy for detection of clinically significant cancer in men referred to the hospital with an elevated PSA level. Recently, biparametric, noncontrast (short) MRI protocols have been developed that offer shorter scanning times with a favorable diagnostic performance. An alternative, inexpensive, and more widely available test is ultrasonography. Recently, the combination of standard B mode imaging with other ultrasonographic modalities, such as shear wave elastography (SWE), has shown promise. Shear wave elastography provides a quantitative measurement of suspicious areas within the prostate based on tissue elasticity. The Imperial Prostate 1 Prostate Cancer Screening Trial Using Imaging (IP1-PROSTAGRAM) study was established to determine the performance of these imaging tests for prostate cancer screening.

Objective: To compare the performance of PSA testing, MRI, and ultrasonography as screening tests for prostate cancer.

Design, setting, and participants: Prospective, population-based, blinded cohort study. Men 50 to 69 years of age were invited for prostate cancer.



Screening, Recruitment, and Flow of Participants

Interventions:

All participants underwent screening with a PSA test, MRI (T2 weighted and diffusion), and ultrasonography (B-mode and shear wave elastography). The tests were independently interpreted without knowledge of other results. Both imaging tests were reported on a validated 5-point scale of suspicion. If any test result was positive, a systematic 12-core biopsy was performed. Additional image fusion–targeted biopsies were performed if the MRI or ultrasonography results were positive.

Main outcomes and measures:

Primary outcome: Proportion of men with positive MRI or ultrasonography (defined as a score of 3-5 or 4-5) or PSA test (defined as PSA 3 μg/L) results.

Secondary outcomes: Number of clinically significant and clinically insignificant cancers detected if each test was used exclusively. Clinically significant cancer was defined as any Gleason score of 3+4 or higher.

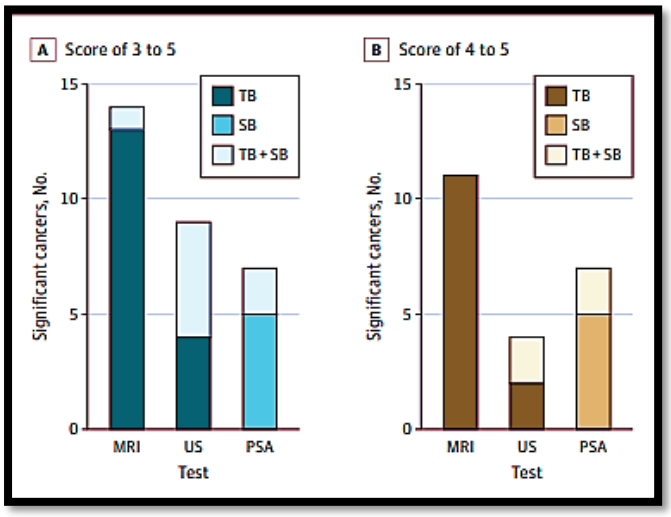
Results: A total of 2034 men were invited to participate; The proportion with positive MRI results (score, 3-5) was higher than the proportion with positive PSA test results (72 [17.7%; 95% CI, 14.3%-21.8%] vs 40 [9.9%; 95% CI, 7.3%-13.2%]; P < .001).

Number of Positive Test Results and Cancers Detected by MRI, Ultrasonography, and PSA testing

	MRI		Ultrasonography		
Variable	Score 3-5	Score 4-5	Score 3-5	Score 4-5	PSA (≥3 ng/mL)
Positive test result	72	43	96	52	40
Biopsy result					
Significant cancer[a]	14	11	9	4	7
Insignificant cancer[b]	7	5	13	7	6
Benign	44	22	63	35	23
Withdrew[c]	7	5	11	6	4

The proportion with positive ultrasonography results (score, 3-5) was also higher than the proportion of those with positive PSA test results (96 [23.7%; 95% CI, 19.8%-28.1%]; P < .001). For an imaging threshold of score 4 to 5, the proportion with positive MRI results was similar to the proportion with positive PSA test results (43 [10.6%; 95% CI, 7.9%-14.0%]; P = .71), as was the proportion with positive ultrasonography results (52 [12.8%; 95% CI, 9.9%-16.5%]; P = .15).

Comparison of Detected Clinically Significant Cancers by Each Screening Test According to Magnetic Resonance Imaging (MRI) and Ultrasonography (US) Threshold



A. Clinically significant cancer is defined as a Gleason score of 3+4 or higher (International Society of Urological Pathology score 2). Positive test results are defined as a prostate-specific antigen (PSA) level of 3 ng/mL or higher, an MRI score of 3 to 5, and a US score of 3 to 5. The PSA levels for the 8 men with MRI scores of 3 to 5 and a PSA level less than 3 ng/mL

B. Clinically significant cancer is defined as a Gleason score of 3+4 or higher (International Society of Urological Pathology score 2). TB indicates targeted biopsy; SB, systematic biopsy.

The PSA test (3 ng/mL) detected 7 clinically significant cancers, an MRI score of 3 to 5 detected 14 cancers, an MRI score of 4 to 5 detected 11 cancers, an ultrasonography score of 3 to 5 detected 9 cancer, and an ultrasonography score of 4 to 5 detected 4 cancers. Clinically insignificant cancers were diagnosed by PSA testing in 6 cases, by an MRI score of 3 to 5 in 7 cases, an MRI score of 4 to 5 in 5 cases, an ultrasonography score of 3 to 5 in 13 cases, and an ultrasonography score of 4 to 5 in 7 cases.

Conclusions and relevance

Screening the general population for prostate cancer, MRI using a score of 4 or 5 to define a positive test result compared with PSA alone at 3 ng/mL or higher was associated with more men diagnosed with clinically significant cancer, without an increase in the number of men advised to undergo biopsy or over diagnosed with clinically insignificant cancer. There was no evidence that ultrasonography would have better performance compared with PSA testing alone.

Source: Evans D, et al. Population-Based Prostate Cancer Screening With Magnetic Resonance Imaging or Ultrasonography: The IP1-PROSTAGRAM Study. JAMA Oncol. *Published online February 11, 2021.*

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Outcomes of thulium fibre laser for treatment of urinary tract stones: results of a systematic review

Introduction

In the last few years, many rumours and hype has surrounded a new laser technology, the thulium fibre laser (TFL). Many claims of better performance in comparison to the Holmium:Yttrium-Aluminum garnet (Ho:YAG) laser, the current gold-standard in endoscopic laser lithotripsy have been made in several papers, congress presentations or scientific news outlets. Approved by FDA in 2019 and the European CE mark approval in 2020. Thulium fibre laser technology has become more widely available now.

Objective: To evaluate the latest data available to date, to create an objective and evidence-based opinion about the new technology and associated clinical outcomes.

Recent findings

Sixty full-text articles and peer-reviewed abstract presentations were included in the qualitative synthesis of this systematic review performed over the last 2 years. Current super pulsed TFL machines are capable of achieving peak powers of 500W and emit very small pulse energies of 0.025 Joules going up to 6 Joules, and capable of frequency over 2000 Hz. This makes the TFL ablate twice as fast for fragmentation, 4 times as fast for dusting, more stone dust of finer size and less retropulsion compared to the Ho:YAG laser. Because of the smaller laser fibres with the TFL, future miniaturization of instruments is also possible.

Conclusion:

Based on the review, TFL is a game changer and has a promising role in the future. Considering its additional versatility for soft tissue applications, it has the potential to compete or even replace the Ho:YAG laser and becoming the new gold standard. The evidence supporting the TFL seems very promising, but we have to be careful before fully embracing the TFL as an alternative to the Ho:YAG laser. Considering the current rarity and absence of TFL machines throughout the world, most studies regarding the TFL have relative small sample size and almost no clinical comparative studies exist in relation to the Ho:YAG laser.

KEY POINTS

- TFL technology has a promising role in the future of laser lithotripsy.
- The advantages of the TFL over the Ho:YAG laser are numerous and ubiquitous, including significant improvements in ablation efficiency, retropulsion, lithotripsy settings, laser fibres, safety and machine form-factor.
- TFL technology is capable of reducing operating room time, expanding the role of RIRS in the treatment of larger kidney stones and changing the current guidelines on stone management.
- The TFL has potential to compete or even replace the Ho:YAG laser, but more clinical studies are needed to determine if it will become the new gold standard.

***Source:** Kronenberg P, Hameed BMZ, Somani B. Outcomes of thulium fibre laser for treatment of urinary tract stones: results of a systematic review. Curr Opin Urol. 2021 Mar 1;31(2):80-86.*

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Effects of pre-emptive pregabalin and multimodal anesthesia on postoperative opioid requirements in patients undergoing robot-assisted laparoscopic prostatectomy

Introduction

Prostate cancer is the second most frequent malignancy among males worldwide. Robotic-assisted laparoscopic radical prostatectomy (RALP) has evolved into the predominant surgical approach in localized prostate cancer. Due to its minimally invasive nature, RALP is associated with decreased pain levels compared to open prostatectomy (ORP). Certain patient undergoing RALP experience mild to moderate postoperative pain and often need opioids perioperatively. Standardized, multimodal analgesic regimen with non-opioid agents aims to minimize the use of opioids and thereby decrease opioid related adverse effects. Pregabalin is a gamma-aminobutyric acid analogue that binds to voltage-gated calcium channels and decreases pain sensation by inhibiting calcium influx and the subsequent release of excitatory neurotransmitters in the central nervous system. Pregabalin has been used for as premedication in patients undergoing RALP. However, there is some concerns about respiratory depression in patients that received pregabalin in combination with opioids and/ or general anesthetics.

Objective:

To evaluate the impact of single dose of pre-emptive pregabalin on postoperative opioid consumption of RALP patients receiving multimodal analgesia.

To evaluate the efficacy of our perioperative multimodal analgesic regimen of RALP.

Methods

Inclusion Criteria:

- Retrospective evaluation of patients undergoing RALP and patients with ASA status 1–3, age between 35 and 80 years, weight between 50 and 100 kg were included in the study.

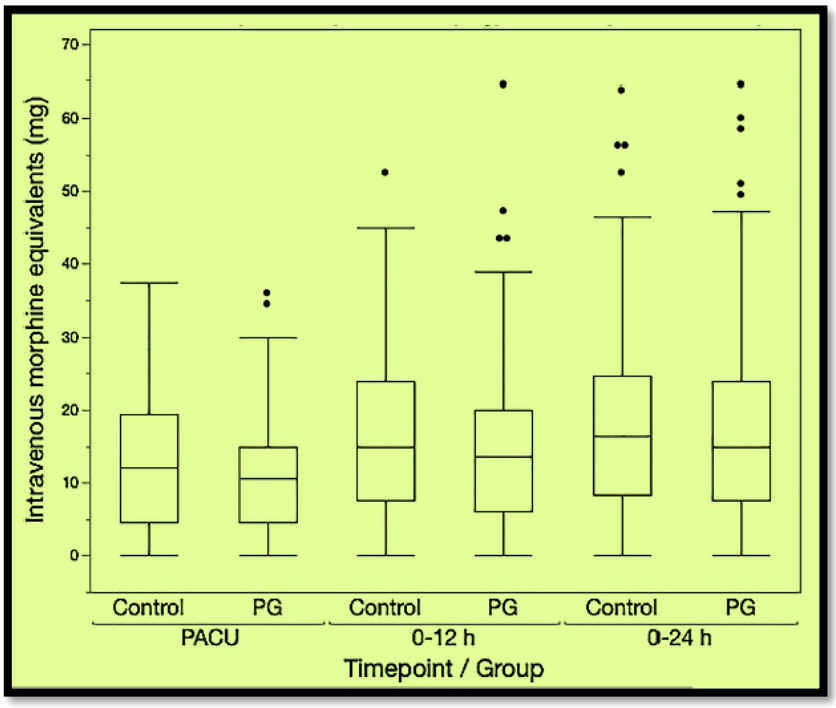
Exclusion criteria:

- Patients receiving other adjuvant analgesics such as clonidine or tricyclic antidepressants pre intra- or postoperatively, patients with chronic opioid or gabapentinoid use,
- Patients with history of chronic pain syndrome, perioperative abnormalities or patients with kidney failure (creatinine clearance < 90 ml/min)
- Patients with abnormal liver function tests or patients with clinically significant abnormalities in preoperative medical examination, ECG or laboratory values
- Patients undergoing total intravenous anesthesia.

Patient who met the criteria received Pregabalin (PG) group received 150 mg of oral pregabalin as premedication before anesthesia induction, while the control (CTRL) group was treated conventionally. Postoperative opioid requirements were calculated as intravenous morphine equivalent doses for both groups. The impact of pregabalin on postoperative nausea and vomiting (PONV), and length of stay (LOS) was evaluated.

Results:

A total of 245 patients in the PG group and 103 in the CTRL group. Median (IQR) opioid consumption over 24 postoperative hours was 15 (8–24) and 17 (8–25) mg in PG and CTRL groups ($p = 0.44$).



Postoperative opioid consumption in oral morphine equivalents (mg) within three postoperative time

There is no difference in postoperative opioid requirement between the two groups in post anesthesia care unit, or within 12 h postoperatively (p = 0.16; p = 0.09). The length of post anesthesia care unit stay was same in each group and there was no difference in PONV. Similarly, median postoperative LOS was 31 h in both groups.

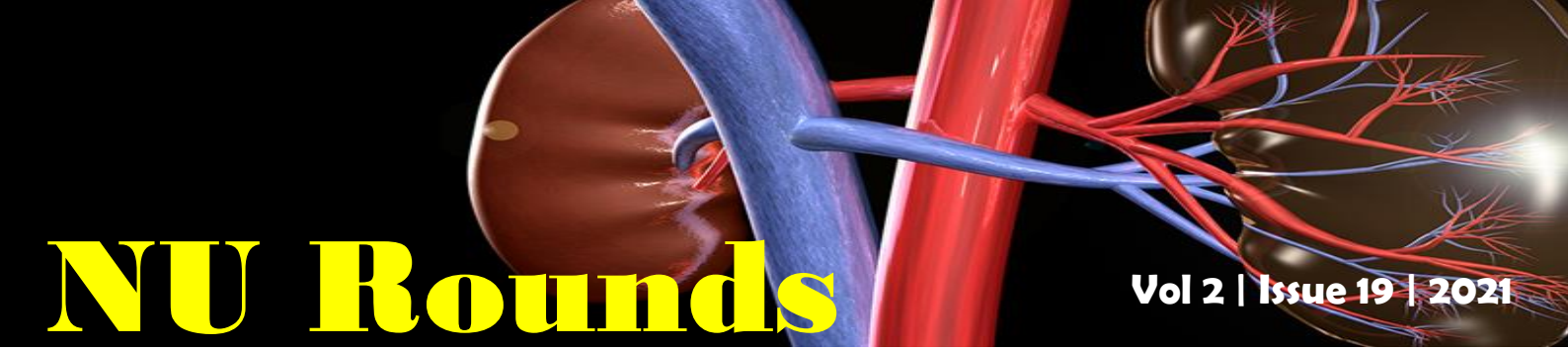
Outcome of the study

	PG-group (n = 245)	CTRL-group (n = 103)	*p* value
Intraoperative fentanyl requirement (mg)[a]	400 (350–450)	350 (300–400)	0.06
Postoperative opioid consumption in PACU (mg)[a]	11 (5–20)	12 (5–20)	0.16
Postoperative opioid consumption 0–12 h (mg)[a]	14 (6–21)	15 (8–24)	0.09
Postoperative opioid consumption 0–24 h (mg)[a]	15 (8–24)	17 (8–25)	0.44
PACU time (min)[a]	128 (108–152)	126 (103–145)	0.18
LOS (h)[a]	31 (28–49)	31 (28–48)	0.62
PONV (n (%))	19 (7.6)	7 (6.6)	0.34
Severe PONV (n (%))	4 (1.6)	2 (1.9)	0.84
Opioid requirement on first postoperative day (n (%))[b]	79 (32.2)	37 (35.9)	0.36

Conclusion:

Patients undergoing RALP and receiving multimodal analgesia do not need significant amount of opioids postoperatively and can be discharged soon after the procedure. Pre-emptive administration of oral pregabalin does not reduce postoperative opioid consumption, PONV or LOS in these patients.

***Source:** Sisa K, Huoponen S, Ettala O, Antila H, Saari TI, Uusalo P. Effects of pre-emptive pregabalin and multimodal anesthesia on postoperative opioid requirements in patients undergoing robot-assisted laparoscopic prostatectomy. BMC Urol. 2021 Feb 2;21(1):14.*



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