Preoperative high anxiety VAS score as predictive factor of postoperative urinary retention after inguinal hernia repair under spinal anaesthesia

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Introduction

Open inguinal hernia (IH) repair under spinal anaesthesia is one of the most common worldwide procedures performed by general surgeons. However, one of the drawbacks of this type of anesthesia is the possibility of postoperative urinary retention (POUR). POUR after inguinal hernia repair rates from 0 to 40% depending of the type of anesthesia used, reaching higher percentages when is done under regional anesthesia. POUR results to prolonged hospitalization and reduced patient satisfaction. Despite that, spinal anaesthesia, still, remains an attractive option for IH repair, since regional anaesthesia is associated with favorable results in terms of hypotension, postoperative nausea, vomiting and postoperative pain.

Aim of this Study

Aim of this study is to investigate perioperative predisposing factors for POUR after IH repair under spinal anaesthesia

Materials and Methods

This is a prospective clinical trial, with reference number NCT03976934 on clinicaltrials.com. From September 2019 to September 2021, 100 consecutive male patients above 50 years old were enrolled in this study. Exclusion criteria was emergency surgery, benign prostatic hypertrophy under medication, history of open or endoscopic lower urinary track surgeries, neurogical conditions under medications, ASA Score ≥3, IH repair under general or local anesthesia.

Al patient were submitted to open inguinal hernia repair with mesh placement. Possible factors of POUR that were recorded were The examined parameters were age, BMI, IPSS questionnaire scores, size and type of the hernia, operation duration, perioperative administration of intravenous (IV) opioids and/or atropine, administration of spinal opioids, perioperative iv fluids, postoperative pain and preoperative anxiety. Pain and anxiety assessment was based on the Visual Analog Scale (VAS) score.

. According to the existing literature a patient was consider anxious with 51mm or more on the VAS scale. As postoperative urinary retention was defined the inability to void urine up to 8 hours after surgery.

Results

The study results are summarized at table 1. The incidence of POUR was 37%. Bladder catheterization was applied in all POUR cases. Catheter removal was successful in less than 24 h in 34 patients, while in one patient the catheter was removed in the second postoperative day. Two patients required prolonged catheterization. Preoperative patient's high anxiety VAS score (A-VAS) (>51mm) (p=0.007) and the intraoperative use of atropine (p=0.02) were detected as risk factors for POUR. Regression analysis confirmed the results. Most common causes of anxiety among patient with high A-VAS score were anxious personality (9/23), operation (7/23) and anaesthesia (4/23).

Interpretation of results

In our study we had high incidence of POUR. We attribute our results to the fact that we included only males above 50 years old, all surgeries performed under spinal anesthesia and we set a small time interval from surgery to urinary retention diagnosis. Perioperative parameters that were identified as prognostic factors of POUR in our study high anxiety VAS score (A-VAS) an intraoperative administration of atropine.Intravenous administration of atropine is a known predisposing factors of POUR. Atropine is the first line treatment of intraoperative bradycardia and is irreplaceable According to our results preoperative anxiety leads to increased rates of POUR. This is to our knowledge the first study to investigate preoperative anxiety as a predicting factor of POUR. We believe that this finding is quit important and very useful. The use of Anxiety VAS score is an easy and accurate way to identify preoperatively patients that are in danger to develop postoperative urinary retention. In this group of patients a different approach should be used like thorough explanation of the procedure and anesthesia technique, premedication to reduce anxiety levels or even a different anesthetic approach.

References

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Table 1		Urinary Retention		Total	p
		Yes (37)	No (63)		
Age		63.96(9.7)	63.29(10.6)	63.5(10.2)	0.755
IPSS	Mild (0-7)	20 54.1%	46 73.0%	66 66.0%	0.127
	Moderate (8-19)	16 43.2%	15 23.8%	31 31.0%	
	Severe (20-35)	1 2.7%	2 3.2%	3 3.0%	
BMI		25.5(4.75)	25.8(4.3)	25.6(4.1)	0.214
Hernia Type	Indirect	25 67.6%	48 76.2%	73 73.0%	0.635
	Direct	11 29.7%	14 22.2%	25 25.0%	
Size	<10 cm	31 83.8%	44 69.8%	75 75.0%	0.12
	>10 cm	6 16.2%	19 30.2%	25 25.0%	
Operation Duration		46(26)	45(22)	45(25)	0.327
VAS 6h		2(3)	2(1)	2(2)	0.1
VAS 12h		2(1)	2(1)	2(2)	0.811
VAS 24h		2(1)	2(2)	2(1)	0.779
Intraoperative Fluids (lt)		1(1)	1(1)	1(1)	0.859
Postoperative Fluids (lt)		0.5(0)	0.5(0)	0.5(0)	0.109
Total Fluids (lt)		1.5(1)	1.5(1)	1.5(1)	0.609
Spinal Opioids		19 51.4%	27 42.9%	46 46.0%	0.411
IV Opioids		9 24.3%	27 42.9%	36 36.0%	0.06
Atropine		6 16.2%	2 3.2%	8 8.0%	0.02
Nerve Identification		29 78.4%	49 77.8%	78 78.0%	0.94
Nerve Ligation		4 10.8%	5 7.9%	9 9.0%	0.62
Postoperative Analgesia		3 8.1%	3 4.8%	6 6.0%	0.496
A VAS	Low (0-50 mm)	23 62.2%	54 85.7%	77 77.0%	0.007
	High (50-100 mm)	14 37.8%	9 14.3%	23 23.0%	