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Original Research Article

Comparative analysis of immediate and delayed insertion of flexible cystoscope after application of topical anaesthetic lubricant on patient comfort

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ABSTRACT

Background: The objective of the study was to compare the difference in pain scores during flexible cystoscopy between patients undergoing the procedure with insertion of the flexible cystoscope either immediately after topical lubrication with lignocaine gel or after a 3-minute delay.
Methods: A total of 127 male patients with various indications for flexible cystoscopy were enrolled in this prospective study. Patients were randomized in two groups, immediate group and the delayed group depending on the retention time (immediate or after 3-minute delay) of the topical lignocaine gel. Pain scores were recorded immediately after the procedure using a visual analogue scale. The statistical analyses were performed using students "t" test.
Results: Both the groups (immediate group and the delayed group) were comparable for variables including age, level of operating endoscopic surgeon and indication for the procedures. The most common indication for flexible cystoscopy was visible hematuria. There was no statistically significant difference in the mean pain scores between the two groups (p=0.98). However a small subset of patients (age less than 50 years), having flexible cystoscopy for the first time had less pain scores in the delayed group (p=0.003) but the sample size was very small.
Conclusions: The study revealed that there appears to be no benefit in longer retention times of local anaesthetic during the outpatient flexible cystoscopy. However, there might be a possible advantage in men younger than 50 years of age who are having flexible cystoscopy for the first time.

Keywords: Flexible cystoscopy, Local anaesthetic, Visual analogue scale

INTRODUCTION

The earliest use of fiberscope cystoscopy was by Marshall in 1964.[1] The earliest reported use of flexible cystoscope was by Tsuchida and Sugawara.[2] The regular use of the flexible cystoscope started in the first few years of the 1980s.[3,4] It has since evolved and is currently the most commonly performed urological procedure.[5]

The procedure is usually performed by the most junior members of the team as the level of skills required for this procedure are basic and attained pretty quickly. However it can be uncomfortable and painful even in experienced hands. There are two controversial aspects involved, the first one whether a simple lubricant or topical anaesthetic should be used and second one whether to perform cystoscopy immediately or delayed after application of topical anaesthetic. This study focussed on the second aspect and a prospective study

was carried out comparing pain scores after lignocaine gel application in 127 male patients who underwent immediate or delayed flexible cystoscopy depending on the group they belonged.

METHODS

This prospective comparative trial was registered as an audit with Medway Maritime Hospital (ethical committee) but as the results were encouraging it was extended as a research project. Men undergoing flexible cystoscopy were randomized to undergo flexible cystoscope insertion either immediately after topical lubrication with lignocaine gel or after a 3-minute delay by the watch. Pain during the procedure was recorded on a visual analogue scale (scale from 1-10) and the data were analysed at the end of the study. All the successive patients with valid indications for flexible cystoscopy were recruited over a period of three months. The patients were informed about the trial and recruited only after their approval for randomisation. The indications for the office based flexible cystoscopy were visible/ nonvisible haematuria (microscopic and macroscopic haematuria), haematospermia, storage lower urinary tract symptoms, recurrent urinary tract infections and non-muscle invasive bladder cancer surveillance (Table 1). The patients were randomly assigned to the two groups without patient's knowledge to which group they belonged to. Exclusion criteria included extremes of age (less than 20 years or more than 90 years), female patients, urethral stricture or where the passage of the cystoscope into the bladder was not possible and cystoscopy from suprapubic tract. The procedure was performed by two experienced senior urology middle grade registrars. In the supine position, skin prepped with chlorhexidine and 10 ml of lignocaine 2% gel with chlorhexidine was instilled into the urethra. Patients randomized to 3-minute delay cohort had their urethra clamped at the glans between two fingers. In the immediate cystoscopy cohort 10 ml of topical anaesthetic was instilled in the urethra followed by insertion of the cystoscope without any delay. Following completion of the procedure, the patients would mark discomfort/pain on a scale from 1-10, in absence of the urologist in the room. In the patients who couldn't speak English an interpreter would assist in the marking on the visual analogue score. The statistics were performed by the unpaired "t" test.

RESULTS

A total of 127 men were randomized in the two groups, immediate group (n=84) and the delayed group (n=43). Mean pain score in the immediate group (n=84) was 1.69 whereas mean pain score in the delayed group (n=43) was 1.70 (p=0.9854) (Figure 1).

Overall 45 patients had cystoscopy for the first time, the mean pain score in the immediate group (n=28) was 2.54 whereas mean pain score in the delayed group (n=17) was 1.41 (p=0.1095) (Figure 2).

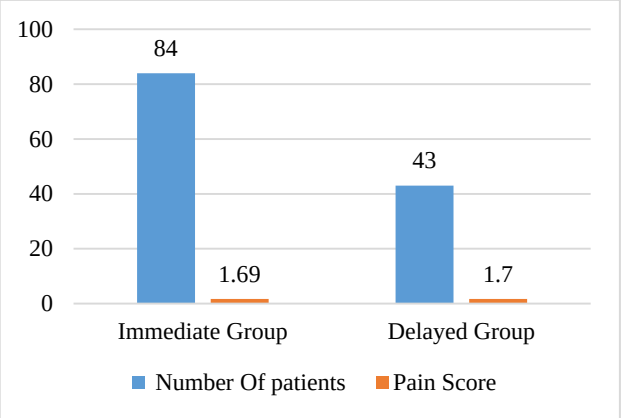

Figure 1: Patients and pain scores.

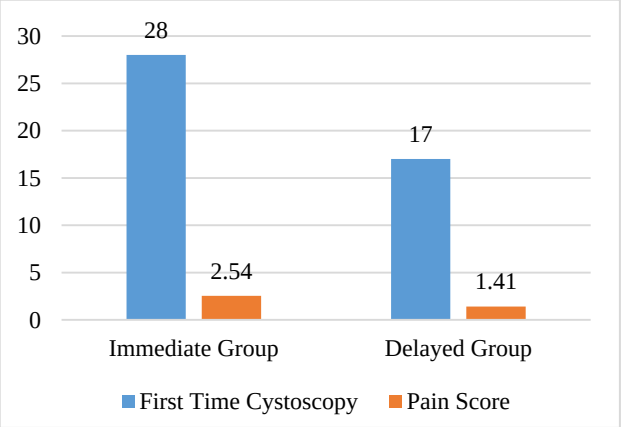

Figure 2: First time cystoscopy.

Table 1: Indications for flexible cystoscopy.

Indications	n=127	Immediate cohort	Delayed cohort
Transitional cell carcinoma surveillance	64	46	18
Visible haematuria	23	19	4
Lower urinary tract symptoms	20	12	8
Urinary tract infections	5	2	3
Stent removal	4	2	2
Non-visible haematuria	4	1	3
Other causes	7	2	5
Pathology identified	12	7	5
Repeat cystoscopy	82	56	26

Table 2: Demographic profile of patient groups.

	Immediate cohort	Delayed cohort	P value
Age 21-84 (64.98±1458 years)	64.6±14.5	63.39±15.96	0.3819
Number of patients.	84	43	
Mean pain score overall	1.69±2.11	1.70±2.08	0.9854
First time cystoscopy (n=45).	2.54 (n=28)	1.41 (n=17)	0.1095
Age <50 years (n=22).	3.08 (n=13)	1.33(n=9)	0.1455
Age <50 & first time cystoscopy (n=13).	4.71(n=7)	0.33(n=6)	0.0037
Age >50 years (n=105).	1.44 (n=71)	1.79 (n=34)	0.3724
Age >50 & first cystoscopy (n=33)	1.81(n=22)	2.0 (n=11)	0.7904

22 patients were younger than 50 years of age. Of these 13 patients were in the immediate group and they had mean pain score of 3.08. In the delayed group, there were 9 patients whose mean pain score was 1.33 (p=0.1455).

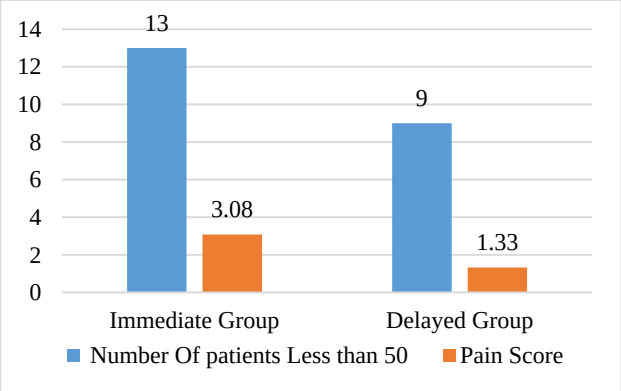

Figure 3: Cystoscopy in less than 50 years of age.

In the younger age immediate group, mean pain score in the subset of patients who underwent cystoscopy for the first time was (n=7) was 4.71, whereas it was 0.33 in delayed cystoscopy sub-group (n =6). The p value equals 0.0037. However the sample size was small.

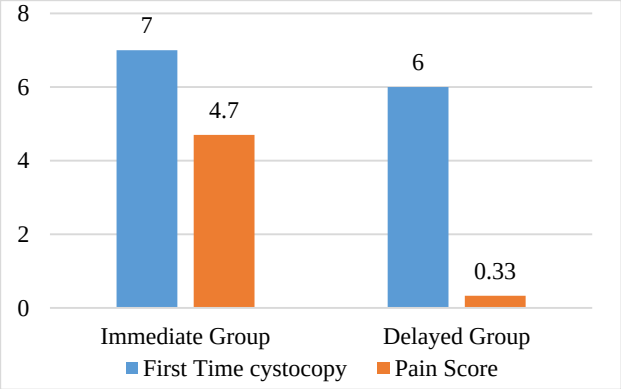

Figure 4: Cystoscopy in less than 50 years of age.

105 patients were older than 50 years of age. In this cohort, 71 patients were in the immediate group with mean pain score of 1.44. 34 patients were in the delayed group and had mean pain score - 1.79 (p=0.3724).

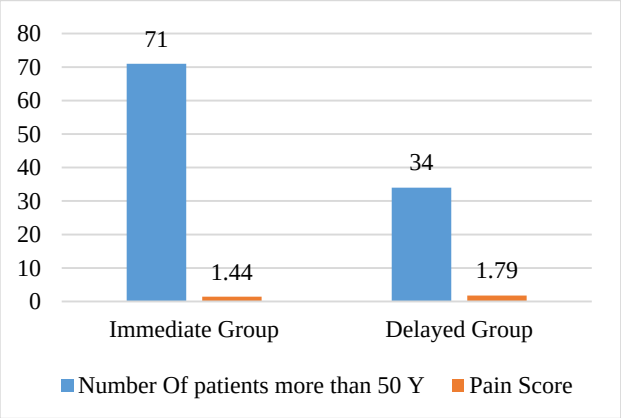

Figure 5: Cystoscopy in more than 50 years of age.

In above 50 years immediate group, mean pain score in the sub-group of patients who underwent cystoscopy for the first time (n=22) was 1.81, whereas it was 2.0 in the delayed sub-group (p=0.7904) (Table 2).

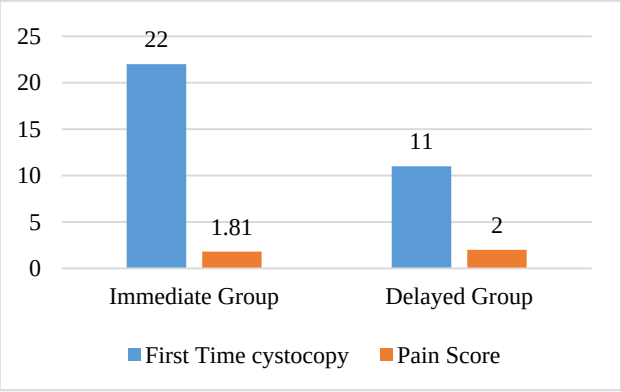

Figure 6: Cystoscopy in more than 50 years of age.

From our study, we found that Flexible cystoscopy is a well-tolerated procedure, however in patients who are younger than 50 years of age delaying cystoscope insertion by 3 minutes after lubrication with topical lignocaine gel reduces pain, especially if the patients are having flexible cystoscopy for the first time. In men older than 50 years of age, delaying cystoscope insertion by 3 minutes after insertion of local anaesthetic gel makes no difference in pain scores, analgesia and patient comfort.

DISCUSSION

Flexible cystoscopy is a common urological procedure. The procedure is uncomfortable in both sexes however it is more so in males due to presence of the prostate gland and long urethral sphincter.[6] 2% lidocaine gel is commonly used as a topical anaesthetic for the procedure but some clinicians' only use lubricant without local anaesthetic. Further some investigators have suggested alternative analgesia including intravenous sedation, inhalation analgesia and even the role of per-rectal diclofenac suppositories.[7-9] However, there is controversy whether local anaesthetic gel facilitates flexible cystoscope insertion by mechanism of analgesia or lubrication only.[7] Several studies have successfully demonstrated that in men topical anaesthetic functions mainly by mechanism of analgesia rather than lubrication only.[11-13] However this was not confirmed in the meta-analysis by Patel et al.[14,15]

The other conflicting point is about the waiting or the retention time of the topical anaesthetic gel in the male urethra prior to the insertion of scope. In our study, we found that immediate flexible cystoscopy after lubrication with topical local anaesthetic provides similar patient comfort compared with delayed insertion by 3-minute interval. There was no difference in the outcome whether patients are having first or repeat flexible cystoscopy. This is supported by evidence from previous studies which have shown that shorter, clinically manageable time delay between lubrication and insertion of the cystoscope is equally effective compared to delayed insertion of the scope.[16] On the other hand there is evidence that a retention time of 15-25 minutes significantly reduces pain from the procedure.[17]

Only young men who are having flexible cystoscopy for the first time have better analgesia and lower pain scores with delayed scope insertion. There is an option of considering additional/alternative analgesia or performing the procedure under general anaesthesia in the young men. Our study shows that the overall pain scores are very low indicating flexible cystoscopy is a very well tolerated procedure in experienced hands and patient friendly environment.

CONCLUSION

Flexible cystoscopy is a well-tolerated procedure, however in patients who are younger than 50 years of age delaying cystoscope insertion by 3 minutes after lubrication with topical lignocaine gel reduces pain, especially if the patients are having flexible cystoscopy for the first time. In men older than 50 years of age, delaying cystoscope insertion by 3 minutes after insertion of local anaesthetic gel makes no difference in pain scores, analgesia and patient comfort.

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ZRB compiled the data and wrote paper, ZB and MMW helped in editing and processing of the paper.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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