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## Do Lubricants with 2% Lidocaine Gel Have an Effect on Patient Comfort in Diagnostic Cystoscopy?

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of article; G – other

### Abstract

**Background.** Patients undergoing both rigid and flexible cystoscopic evaluation suffer from a great deal of pain and discomfort. In this study, we aimed to investigate the effect of lidocaine gel anesthesia on patient comfort on diagnostic rigid cystoscopy.

**Material and Methods.** 11 mL of lubricant gel applied to each patient via the external meatus in 10 s. Patients were randomized into three groups. In group 1, liquid glycerine was applied and cystoscopy was immediately performed, in group 2 lidocaine gel (Aqua Touch™: İstem Tıbbi Cihaz Ve Sanayi Ltd.Şti, Ostim, Ankara, Türkiye) was applied and the procedure undergone immediately and in group 3, lidocaine gel was applied and penis was clamped for 10 minutes before the procedure. VAS forms were filled to determine the discomfort and pain during cystoscopy and the first micturition after.

**Results.** After the evaluation between groups, VAS scores were significantly lower in Group II and III than Group I and in Group III than in Group II ( $p < 0.05$ ). When post micturition VAS scores were evaluated, VAS scores were significantly lower in Group II than Group I and in Group III than in Group II ( $p < 0.05$ ).

**Conclusions.** The application of local anesthetic lidocaine gel in rigid cystoscopy, is a practical, safe and efficient method to improve patient comfort when applied in appropriate dose and waiting duration (Adv Clin Exp Med 2014, 23, 4, 585–587).

**Key words:** cystoscopy, lidocaine gel, pain.

Cystoscopic interventions are procedures often used by urologists for diagnosis and treatment. Used as both rigid and flexible, patients undergoing cystoscopy suffer from a great deal of pain and discomfort. Because of that disadvantage, many clinics prefer general anesthesia; however, in crowded centers and office urology, cystoscopy is performed with local anesthesia. Most lubricant gels contain lidocaine HCl as the local anesthetic. Even though, to optimize gel efficacy, the amount and duration of gel instillation, gel temperature and the waiting duration after the instillation have been investigated, it is hard to reach a consensus [1].

Even though flexible cystoscopy is used more commonly as it causes less pain and discomfort,

its high cost, need for higher irrigation duration, smaller optical area and difficulty to orientate are why many centers still use rigid cystoscopy [2].

In this study, we aimed to investigate the usage of lidocaine gel for rigid cystoscopy on patient comfort.

### Material and Methods

320 male patients applied to our clinic between January 2011 and May 2012 for their first cystoscopic intervention were enrolled in the study. Female patients, children, patients having a history of previous cystoscopic interventions and patients undergoing cystoscopy for treatment were

excluded from the study. All patients included in the study had a blood count, urinalysis, hepatitis and HIV markers and coagulation parameters.

After genital area disinfection, at room temperature, 11 mL sterile lubricant gel was instilled from external meatus in 10 seconds. Patients were randomized into three groups. In group 1, liquid glycerin was used for the lubricant and the procedure was performed immediately, in Group 2 patients underwent the procedure immediately after the instillation of lidocaine gel (Aqua Touch™: İstem Tıbbi Cihaz Ve Sanayi Ltd.Şti, Ostim, Ankara, Turkey) and in group 3, patients underwent cystoscopy after a waiting period of 10 min following the lidocaine instillation. A 17 F Storz rigid cystoscope was used. A visual analog scala (VAS) questionnaire was filled to evaluate patient pain and discomfort during and after the first miction following cystoscopy.

Statistical analyses were performed using the Statistical Package for Social Sciences version 20.0 for MAC (SPSS Inc, Chicago, Illinois, USA). To test the analysis of data distribution, a Kolmogorov-Smirnov test, and to test for equality of variances, a Levene's test for equality of variances were used. One-way ANOVA was used for in-group comparisons and Tukey's test was used for group comparison. A value of  $p < 0.05$  was considered statistically significant.

## Results

Hematuria for 180 patients, urolithiasis for 65 patients, urethral stricture suspicion for 55 patients and other for 20 patients was the reason the patients underwent cystoscopy. 10 patients were excluded from the study because of coagulation disorder, 5 for acute urinary infection and 5 for co-operation difficulties.

All VAS scores for all groups are summarized in Table 1.

Patient age was similar among groups. In the evaluation between groups for VAS scores, Groups

II and III were lower than Group I, and Group III was lower than Group II, and the difference was statistically significant ( $p < 0.05$ ). When the first micturition VAS scores were compared, Group III had lower scores than Group II, and Group II had lower scores than Group I ( $p < 0.05$ ).

## Discussion

When the studies in the literature are evaluated, it can be seen that there is a trend to promote the comfort of the patient with lidocaine gel anesthesia before cystoscopy, but some researchers advocate that the gel itself causes some discomfort and pain.

In a study conducted with 100 patients, lubricants containing anesthetics increased pain perception compared to liquid gel. The authors explained the phenomenon as the hydraulic distention of the urethra and sphincter and possible over-fast instillation [3].

In another study backing up the same hypothesis, to enhance patient comfort, it was told to have instillation duration less than ten seconds [4]. Parallel to these studies, we set the instillation duration as 10 seconds. Like our hypothesis, there are studies stating the indirect relation between instillation time and pain perception [5].

On the other hand, in a prospective randomized study containing 179 patients, in male patients undergoing cystoscopy after lidocaine gel instillation, pain perception was significantly lower than with normal liquid gel [6]. Our results correlate with that literature as lower VAS scores in groups with lidocaine gel.

In studies conducted to evaluate the waiting period after instillation, as all local anesthetics, local anesthetic instillation for urethral instrumenting needs time to begin and it was said that at least 10 min should be waited [6–8].

On the other hand, in a double blind placebo-controlled study on 60 male patients, the first group received 20 mL liquid gel, the second group received

**Table 1.** Comparison of VAS scores between groups

	Group I (n = 97)	Group II (n = 101)	Group III (n = 102)	P <sup>*,**,***</sup>
Age (Mean ± SD)	59.4 ± 2.3	60.2 ± 1.8	61.1 ± 1.9	ns.
VAS (during cystoscopy) (Mean ± SD)	7.27 ± 1.15	4.42 ± 1.49	2.84 ± 0.84	$p < 0.05$
VAS (during micturition after cystoscopy) (Mean ± SD)	5.12 ± 1.85	3.59 ± 1.09	1.24 ± 0.68	$P < 0.05$

\* Comparison of values between G I and G II.

\*\* Comparison of values between G I and G III.

\*\*\* Comparison of values between G II and G III.

10 mL lidocaine gel and the third group received 20 mL lidocaine gel and the investigators waited for 15 min after the instillation. There was no significant difference in pain perception between the groups [9]. Our study, however, was similar to those advocating the lowering of pain after an appropriate

waiting period. Our patients who waited 10 min after the instillation had lower pain scores.

Local anesthetic gel preparation for rigid cystoscopy is a practical, safe and efficient method when used in appropriate dosage, at appropriate speed and after appropriate waiting duration.

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