A novel application of 2% lidocaine injection for male rigid cycstoscopy-a patient-blinded randomised trial

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Sponsor:	The Second Xiangya Hospital of Central South University
Lead status:	Multi-center （Lead） Multi-center （Participants） ☑Single-center
Nature/type of study:	Interventional/randomized controlled clinical trial
Principal Investigator(s):	Cheng Shunhua, Associate Chief Nurse
Declared specialty:	UROLOGY
NCT ID:	2022021

The Second Xiangya Hospital of Central South University

Program Submission Statement

The study protocol submitted herein was developed by the investigator, Cheng Shunhua, and the protocol was developed with reference to the requirements of relevant national clinical research regulations. The above persons/units have approved the content of this protocol and agreed to submit it to the Second Xiangya Hospital of Central South University to apply for a clinical research project (initiated by the investigator).

In order to ensure the authenticity and safety of the data of the clinical research, the investigator guarantees that the submitted information is true, legal, valid and objective, without falsification, fabrication, alteration, tampering and concealment, and guarantees that the information and documents of the project filled in CTMS, "Medical Research Registration and Filing Information System" are the same as the paper information on file, and that he/she will Strictly follow the protocol design and plan, submit the study progress report/completion report on time, and report to the Ethics Committee in a timely manner in case of protocol changes, adverse events or any factors affecting the safety of the study.

LIST

1.Background

Cystoscopy is a routine outpatient procedure in urology used to assess the health of the bladder mucosa and lower urethra. However, due to the inherent pain associated with this procedure, significant challenges exist. Not only does this cause inevitable discomfort for patients, but it also can lead to patients missing follow-up opportunities, thereby impacting the overall effectiveness of the surgery.

Pain is typically categorized as mild or moderate. Flexible cystoscopy, often performed in outpatient settings, is one measure aimed at alleviating procedural discomfort. However, despite the use of these advanced instruments, patient-reported discomfort remains similar to traditional methods. Notable gender differences suggest that males experience greater pain compared to females. The most painful stage is during cystoscope insertion, particularly when passing through the external urethral sphincter.

We conducted a study to evaluate the comparative efficacy of lidocaine gel and lidocaine injection in irrigation during outpatient rigid cystoscopy examination.

2.Research Programs and Plans

2.1 Subject of study

Subject of study：Male patients under 50 years of age with diagnosed with bladder tumors requiring postoperative cystoscopy attending the Department of Urology at the Second Xiangya Hospital from January 2024 to present.

The inclusion criteria were: 1. patients with bladder tumors need to undergo cystoscopy after surgery; 2. male patients, aged 18-50 years old, meeting the ethical criteria, and all subjects participated voluntarily and signed the informed consent form at the same time; 3. no adjuvant treatments, such as radiotherapy, chemotherapy, etc., prior to the surgery; 4. complete medical history data.

Exclusion criteria:1. Other evident causes contributing to lower urinary tract symptoms, such as obvious glandular cystitis and severe urinary tract infections. 2. Excessive prostatic hyperplasia. 3. Urethral stricture. 4. A history of prior urethral surgeries. 5. Uncontrolled hypertension, cardiac conditions, and chronic obstructive pulmonary disease.

2.2 Arms and interventions

Arms	Assigned Interventions
Sham Comparator: Intraurethral lidocaine gel alone Participants received 10 ml of intraurethral lidocaine gel at a concentration of 2%	Drug: Intraurethral lidocaine gel alone participants received 10 ml of intraurethral lidocaine gel at a concentration of 2% Other Names: Group A
Experimental: Intraurethral lidocaine gel + lidocaine 2% injection Participants received 10 ml of intraurethral lidocaine gel at a concentration of 2% and using the injection of lidocaine 2% to irrigate the urethra using a 20 ml syringe.	Drug: Intraurethral lidocaine gel + lidocaine 2% injection participants received 10 ml of intraurethral lidocaine gel at a concentration of 2% and using the injection of lidocaine 2% to irrigate the urethra using a 20 ml syringe. Other Names: Group B
Experimental: intraurethral lidocaine gel +	Drug: intraurethral lidocaine gel + liquid paraffinl

liquid paraffinl Liquid paraffin were used to lubricate hte cystoscopy tube AND participants received 10 ml of intraurethral lidocaine gel at a concentration of 2%	Liquid paraffin were used to lubricate hte cystoscopy tube AND participants received 10 ml of intraurethral lidocaine gel at a concentration of 2% Other Names: Group C

2.3 Outcome Measures

2.3.1 Primary Outcome Measure:

Access the pain score using the Visual Analogue Scale (VAS) during the procedure.Time Frame: The procedure was evaluated using the visual analogue scale immediately afterward (referred to as "during the procedure" for the study's purposes) and again five minutes later.

2.3.2 Secondary Outcome Measures:

Postoperative complications including included parameters such as field of view occlusion, duration of pain, hematuria duration, and lower urinary tract symptoms post-procedure. Time Frame: Within three days after surgery.

3.Data management and quality control

The investigator loads data into the case report form in a timely, complete, correct, and legible manner based on the subject's original observation record. The questionnaire after review and signature by the ombudsman should be sent to the clinical research data manager in a timely manner.

The entry is done using the appropriate database system of two-person dual-machine entry, after which the database is compared twice, during which the monitor is notified promptly if any problems are found, and the researcher is asked to make a reply. The exchange of questions and answers between them should be in the form of a questionnaire, which should be kept for reference.

Statistical Analysis Plan

After data collection, descriptive and analytical analyses were conducted using SPSS version 26. Between-group differences were assessed using independent samples analysis of variance (ANOVA). Due to the significant result of the Shapiro-Wilk test, non-parametric tests (Kruskal-Wallis test) were employed for statistical analysis. Dwass-Steel-Critchlow-Fligner test was used as a post-hoc analysis to delineate specific between-group differences in mean pain scores and other surgery-related data. Data are presented as mean (M) ± standard deviation (SD).

Informed Consent Form

Dear Subject/Volunteer:

Greetings!

We would like to invite you to participate in a medical study called "A novel application of 2% lidocaine injection for male rigid cycstoscopy-a patient-blinded randomized trial We are inviting you to participate in a medical research study called "A novel application of 2% lidocaine injection for male rigid cycstoscopy-a patient-blinded randomized trial" conducted by the Department of Urology, Second Xiangya Hospital, Central South University. Whether or not you participate in this study is based on your personal wishes. In order to help you understand this study, this informed consent form will give you a detailed description of the purpose of the study and the process of conducting the study, as well as a description of the possible risks of participating in this study and the possible benefits. If you are interested, please read the rest of the information carefully and any questions you may have will be answered by the study doctor and researchers. If all your questions about this study have been answered to your satisfaction and you are considering participating in this study, you may sign this informed consent form.

1. Why was this study conducted?

Cystoscopy is a routine outpatient procedure in urology used to assess the health of the bladder mucosa and lower urethra. However, due to the inherent pain associated with this procedure, significant challenges exist. Not only does this cause inevitable discomfort for patients, but it also can lead to patients missing follow-up opportunities, thereby impacting the overall effectiveness of the surgery. Pain is typically categorized as mild or moderate. Flexible cystoscopy, often performed in outpatient settings, is one measure aimed at alleviating procedural discomfort. However, despite the use of these advanced instruments, patient-reported discomfort remains similar to traditional methods. Notable gender differences suggest that males experience greater pain compared to females. The most painful stage is during cystoscope insertion, particularly when passing through the external urethral sphincter. We conducted a study to evaluate the comparative efficacy of lidocaine gel and lidocaine injection in irrigation during outpatient rigid cystoscopy examination

2. The process of this study

Subject of study：Male patients under 50 years of age with diagnosed with bladder tumors requiring postoperative cystoscopy attending the Department of Urology at the Second Xiangya Hospital from January 2024 to present.

The inclusion criteria were: 1. Patients with bladder tumors need to undergo cystoscopy after surgery; 2. male patients, aged 18-50 years old, meeting the ethical criteria, and all subjects participated voluntarily and signed the informed consent form at the same time; 3. no adjuvanttreatments, such as radiotherapy, chemotherapy, etc., prior to the surgery; 4. complete medical history data.

Exclusion criteria:1. Other evident causes contributing to lower urinary tract symptoms, such as obvious glandular cystitis and severe urinary tract infections. 2. Excessive prostatic hyperplasia. 3. Urethral stricture. 4. A history of prior urethral surgeries. 5. Uncontrolled hypertension, cardiac conditions, and chronic obstructive pulmonary disease.
Primary Outcome Measure: Access the pain score using the Visual Analogue Scale (VAS) during the procedure.Time Frame: The procedure was evaluated using the visual analogue scale immediately afterward (referred to as "during the procedure" for the study's purposes) and again five minutes later.
Secondary Outcome Measures:
Postoperative complications including included parameters such as field of view occlusion, duration of pain, hematuria duration, and lower urinary tract symptoms post -procedure. Time Frame: Within three days after surgery.

3. Plan for dealing with problems related to the course of this study

If you experience problems as a result of participating in the study, your doctor will immediately provide the necessary medical treatment. In the event of a study-related injury, the injury will be evaluated and determined by medical authorities in accordance with applicable laws and regulations. Please contact your physician promptly.

4.Information Confidentiality

Relevant laws in China provide guarantees for the security of privacy, data and authorized access, and we will strictly follow the requirements of the law to maintain the confidentiality of your information when collecting and processing research information related to you. Your name, ID number, address, telephone number, or any information that can directly identify you in the research records will not be disclosed outside of the Second Xiangya Hospital of Central South University unless required by relevant laws. For research information about you that is passed to the Second Xiangya Hospital of Central South University, we will use a number instead to hide your personal information, and the coded information will be properly stored in the Department of Urology of the Second Xiangya Hospital of Central South University. Your identity will not be disclosed when the research data obtained from this study is published in scientific conferences or scientific journals. However, your records may

be reviewed to ensure that the study complies with relevant laws and regulations. The reviewers include the relevant national regulatory authorities and the Clinical Research Ethics Committee of the Second Xiangya Hospital of Central South University.

5. Refusing to participate or withdrawing from the study

Participation in this study is based solely on your own wishes. You may refuse to participate or withdraw from the study in any way at any stage of the trial without discrimination or retaliation, and your medical treatment and rights will not be affected, except that you will be required to return any unused study medications and devices.

If you have a serious adverse reaction, or if your study doctor feels that it is not in your best interest to continue in the study, he/she may decide to withdraw you from the study. You will be notified promptly if these circumstances exist, and your study doctor will discuss with you the other options you have. If your doctor believes that a sudden discontinuation of the trial will affect your health, he/she may ask you to come to the hospital for a check-up before stopping the trial. No new data will be collected on subjects after they have been withdrawn from the trial.

6. Rights and benefits

As this is an interventional study, it will be clarified that the patient has no history of allergy to the drug (lidocaine) and will be treated unconditionally by our specialists in the event of an adverse reaction. In the event of any adverse reaction or complication during a routine cystoscopy, our specialists will provide unconditional treatment. We would like to thank you for your participation in scientific research and your contribution to the development of medicine!

Subject Statement and Signature Acknowledgment:

I have read this informed consent form carefully and have had the opportunity to ask questions, which have been thoroughly explained to me and answered by the investigator. I understand that participation in this study is completely voluntary, that I may withdraw at any time without giving a reason, and that my medical and legal rights will not be affected. I give permission for the sponsor, the researcher, and the Health Inspectorate to review my medical records, and I understand that the researcher will take all reasonable steps to protect my privacy. I agree to participate in this study and will receive a signed copy of the completed informed consent form.

Subject's name (in print):

Signature (handwritten): Date:

Contact Phone Number:

Subject's legal representative's name (in print):

Signature (handwritten): Date:

Contact phone number:

Investigator Statement and Signature Acknowledgment:

I or my investigator has fully explained and justified to this subject the purpose of this clinical trial, the study process, and the possible risks and benefits to the subject of participating in this trial, and has answered all relevant questions from the subject.

Project Designated Contact: Contact Phone:

Researcher's name (in print):

Signature (handwritten): Date:

Contact phone number: