การใช้ยาพาราเซตามอลในการลดอาการปวดจากการส่องกล้องตรวจกระเพาะปัสสาวะ

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หน่วยศัลยกรรมระบบทางเดินปัสสาวะ แผนกศัลยกรรม โรงพยาบาลราชวิถี

บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาผลการใช้ยาพาราเซตามอลในการลดอาการปวดจากการส่องกล้องตรวจกระเพาะปัสสาวะ

ผู้ป่วยและวิธีการศึกษา: ทำาการศึกษาในผู้ป่วยชายจำนวน 209 ราย โดยสุ่มแยกผู้ป่วยเป็น 2 กลุ่ม ซึ่งกลุ่มทดลองได้รับยาพาราเซตามอลขนาด 500 มิลลิกรัมจำนวน 2 เม็ด (n=110) และกลุ่มควบคุมได้รับยาหลอกจำนวน 2 เม็ด (n=99) หลังจากผู้ป่วยได้รับยา 30 นาที ศัลยแพทย์ได้ฉีดสารหล่อลื่นลิโดเคนเข้าสู่ท่อปัสสาวะ และรอ 10 นาที จึงส่องกล้องตรวจกระเพาะปัสสาวะ การประเมินผลความปวด ใช้ 11-point numerical rating scale โดยประเมินผล 3 ช่วง ได้แก่ ระหว่างการฉีดสารหล่อลื่นลิโดเคนเข้าสู่ท่อปัสสาวะ ระหว่างการส่องกล้องตรวจกระเพาะปัสสาวะ และระหว่างการปัสสาวะครั้งแรกหลังจากส่องกล้อง

ผลการศึกษา: เมื่อเปรียบเทียบคะแนนความปวดในกลุ่มผู้ป่วยที่ได้รับยาพาราเซตามอล กับกลุ่มควบคุมพบว่าไม่มีความแตกต่างอย่างมีนัยสำคัญทางสถิติ ระหว่างการฉีดสารหล่อลื่นลิโดเคนเข้าสู่ท่อปัสสาวะ (p=0.925) ระหว่างการส่องกล้องตรวจกระเพาะปัสสาวะ (p=0.454) และระหว่างการปัสสาวะครั้งแรกหลังจากการส่องกล้อง (p=0.174).

สรุป: การใช้ยาพาราเซตามอลก่อนการส่องกล้องไม่มีผลในการลดอาการปวดจากการส่องกล้องตรวจกระเพาะปัสสาวะ

คำสำคัญ: พาราเซตามอล สารหล่อลื่นลิโดเคน อาการปวดจากการส่องกล้องตรวจกระเพาะปัสสาวะ
Usage of Paracetamol in reducing cystoscopy-related pain: 
A prospective study

Sermsin Sindhubodee, Nattapon Wongwattanasatien

Division of urology, Department of surgery, Rajavithi hospital

Abstract

Objective: To evaluate the pre-emptive analgesic effect of Paracetamol on rigid cystoscopy-related pain.

Material and Methods: A total of 209 male patients were randomized into 2 groups. The study group (n=110) was given 2 paracetamol tablets of 500 mg each, and the control group (n=99) was given 2 placebo tablets. Thirty minutes after the administration of the tablets, lidocaine gel was injected into the urethra; 10 minutes later the cystoscopic procedure was commenced. Using an 11-point numerical rating scale, the severity of pain was assessed during 3 periods: the injection of the lidocaine gel into the urethra, the endoscopic examination of the urinary bladder, and at the first urination after cystoscopy.

Results: Pain scores with pre-emptive paracetamol plus lidocaine gel were not different from the placebo plus lidocaine gel at the times of the injection of the gel into the urethra (p=0.925), the endoscopic examination of the urinary bladder (p=0.454), and the first urination after cystoscopy (p=0.174).

Conclusion: Pre-emptive paracetamol has no efficacy in reducing cystoscopy-related pain.

Keywords: paracetamol, lidocain gel, cystoscope-related pain
Introduction

Among patients in general, any pain which occurs during the process of investigation and treatment is a serious concern. Some medical devices used in diagnosis, operations and other kinds of curative methods may produce pain. Although cystoscopy is useful, it causes severe pain. All patients would prefer a less painful experience during cystoscopy. A flexible, less pain inducing cystoscope was developed and is available in some urologic clinics. However, the use of a rigid cystoscope is still the common practice because it is less expensive, easier to handle and maintain, and has a better visual field. The disadvantage of a rigid cystoscope is severe pain; therefore, it is essential to find a solution to reduce pain during cystoscopy.

Lidocaine gel injected into the urethra is a way to reduce pain during cystoscopy. This method is widely used; however, it does not provide an adequate analgesic effect in some patients. Moreover, the patients also complain of pain during the lidocaine gel injection, and at their first urination after cystoscopy. As a result, other methods are required to achieve the reduction of pain during cystoscopy. Komiya A et al has conducted a prospective study of the pre-emptive non-steroidal anti-inflammatory drug: Zaltoprofen. The results demonstrated that the pain scores with pre-emptive Zaltoprofen were significantly lower than when applying lidocaine gel alone at different stages of the procedures, namely at the insertion of rigid cystoscope into the urethra, while viewing inside the urinary bladder and at the first urination after cystoscopy.

Owing to the majority of patients who undergo cystoscopy being elderly, the adverse effects of NSAIDs include conditions such as gastrointestinal irritation and renal insufficiency. Thus, paracetamol was chosen for this study because of its safety, low price and availability. In addition, Arici S et al have shown the pre-emptive analgesic effect in total abdominal hysterectomy. This prospective study was conducted to investigate the pre-emptive analgesic effect of paracetamol in patients before the process of cystoscopy.

Materials and methods

This study was conducted from June 2012 -October 2012. The subjects were 209 male patients who had indications to undergo cystoscopy. We excluded patients with the following conditions: urinary retention, stricture urethra, liver failure, cirrhosis, allergy to paracetamol, and those who needed additional procedures such as urethral dilatation, biopsy bladder mass, ureteral or urethral catheterization. This study was approved by the Ethics and Research Committee of Rajavithi Hospital. The Written informed consent was obtained from all participants.

Cystoscopy was performed in an office setting in Rajavithi Hospital. The participants were randomized into 2 groups. The study group (n=110) was given 2 paracetamol tablets (500 mg each) and the control group (n=99) was given 2 placebo tablets. Thirty minutes after the administration of the tablets, 10 ml of 2% lidocaine gel was injected into the urethra; 10 minutes later, the cystoscopy was performed using a Karl Storz-Endoscope, 27026 U, Cystoscope-Urethroscope sheath, 17 Fr and Karl Storz-Endoscope, 27005 BA Hopkins II Forward-Oblique Telescope 30°. Cystoscopy was conducted by 2nd to 4th year urologic residents of the Division of Urology, Department of Surgery, Rajavithi Hospital.

The severity of pain was assessed in 3 periods
during the injection of 2% lidocaine gel into the urethra, while viewing inside the urinary bladder, and at the first urination after cystoscopy (Fig. 1).

An 11-point (0 to 10) numerical rating scale (NRS) was used to assess the severity of pain. (0: no pain, 10: worst possible pain).

The Mann-Whitney U test was used for comparing pain scores. The p-value less than 0.05 was considered significant. The statistical analysis software was Statistical Package for Social Sciences (SPSS).

Results

Characteristics of the patients are shown in Table 1. The mean age of the paracetamol group was 67.26 years whereas the mean age of the placebo group was 66.39 years. The number of patients who had previously been cystoscoped was 86 (78.2%) and 69 (69.7%) in the paracetamol group and in the placebo group, respectively.

The pain scores of the patients in the paracetamol group and placebo group are presented in Table 2. Pre-emptive paracetamol did not have any significant effect on pain during the injection of 2% lidocaine gel into the urethra, while viewing inside the urinary bladder and at the first urination after cystoscopy.

The data presented in Table 3 and Table 4 show that the differences in the pain scores of the patients who had never experienced cystoscopy and those who had undergone cystoscopy previously are not significant.

Discussion

A rigid cystoscope is still commonly used in office urology today since a flexible cystoscope has some disadvantages, such as a higher cost, lower quality of visual field, and it is more difficult to operate.²

![Figure 1. The study design](image-url)
Table 1. Patient’ characteristics

<table>
<thead>
<tr>
<th></th>
<th>Paracetamol group</th>
<th>Placebo group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 110)</td>
<td>(n = 99)</td>
</tr>
<tr>
<td>Age (mean)</td>
<td>67.26</td>
<td>66.39</td>
</tr>
<tr>
<td>Patients who had previously been cystoscoped (n)</td>
<td>86 (78.2%)</td>
<td>69 (69.7%)</td>
</tr>
</tbody>
</table>

Table 2. The pain scores from Paracetamol group and Placebo group

<table>
<thead>
<tr>
<th></th>
<th>Paracetamol</th>
<th>Placebo</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>During injecting 2% Lidocaine gel</td>
<td>1.34 ± 1.655</td>
<td>1.26 ± 1.454</td>
<td>0.925</td>
</tr>
<tr>
<td>During viewing inside the urinary bladder</td>
<td>2.47 ± 2.437</td>
<td>2.63 ± 2.284</td>
<td>0.454</td>
</tr>
<tr>
<td>The first urination after cystoscopy</td>
<td>1.48 ± 1.826</td>
<td>1.69 ± 1.748</td>
<td>0.174</td>
</tr>
<tr>
<td>Average pain score</td>
<td>1.76 ± 1.547</td>
<td>1.86 ± 1.475</td>
<td>0.960</td>
</tr>
</tbody>
</table>

The pain scores are shown in the format of mean ± S.D.

In studies on pain associated with cystoscopy, Muezzinoglu T et al\(^1\) and Taghizadeh AK et al\(^6\) reported that they had found no strong correlation between experienced patients and the pain score. In this study, the results do show a trend of less pain in the experienced patients. However, the p-value does not reach statistical significance. All aforementioned findings suggest that repeated cystoscopy does not lead to any increase of the patient’s tolerance to pain. Previous literature on lidocaine gel is inconclusive.\(^3,7,8\)

Komiya A et al\(^4\) has proven that preemptive Zaltoprofen was effective in reducing pain. Moreover, the efficacy was more significant in patients with higher baseline pain scores.

For pre-emptive oral paracetamol, the study of Afhami M et al\(^9\) has shown an advantage in female patients scheduled for tubectomy. Meanwhile, Arici S et al\(^5\) has demonstrated the benefit of pre-emptive intravenous paracetamol in total abdominal hysterectomy.

In this study, the effect of pre-emptive paracetamol on cystoscopy-related pain was evaluated and compared with the placebo. The pain was evaluated using the NRS, which has good sensitivity and is appropriate for clinical practice.
as a result of its simplicity\textsuperscript{10}. From the results, no significant decrease in pain was observed in all 3 periods. However, we could spot a trend of less pain on average in the paracetamol group, while viewing inside the urinary bladder, and at the first urination after cystoscopy. Thus, preemptive paracetamol may offer some benefit in reducing cystoscopy-related pain. Pain during the injection of 2% lidocaine gel was not reduced in the paracetamol group. This finding may imply that any effect from paracetamol takes a longer period of time to be felt.

**Table 3.** The pain scores of the patients in Paracetamol group according to experienced or inexperienced in cystoscopy.

<table>
<thead>
<tr>
<th>Paracetamol</th>
<th>Experienced</th>
<th>Inexperienced</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>During injecting 2% Lidocaine gel</td>
<td>1.33 ± 1.718</td>
<td>1.38 ± 1.439</td>
<td>0.598</td>
</tr>
<tr>
<td>During viewing inside the urinary bladder</td>
<td>2.34 ± 2.374</td>
<td>2.96 ± 2.645</td>
<td>0.285</td>
</tr>
<tr>
<td>The first urination after cystoscopy</td>
<td>1.42 ± 1.837</td>
<td>1.71 ± 1.805</td>
<td>0.289</td>
</tr>
<tr>
<td>Average pain score</td>
<td>1.69 ± 1.526</td>
<td>2.01 ± 1.626</td>
<td>0.324</td>
</tr>
</tbody>
</table>

The pain scores are shown in the format of mean ± S.D.

**Table 4.** The pain scores of the patients in Placebo group according to experienced or inexperienced in cystoscopy.

<table>
<thead>
<tr>
<th>Placebo</th>
<th>Experienced</th>
<th>Inexperienced</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>During injecting 2% Lidocaine gel</td>
<td>1.19 ± 1.396</td>
<td>1.43 ± 1.591</td>
<td>0.507</td>
</tr>
<tr>
<td>During viewing inside the urinary bladder</td>
<td>2.64 ± 2.223</td>
<td>2.60 ± 2.458</td>
<td>0.766</td>
</tr>
<tr>
<td>The first urination after cystoscopy</td>
<td>1.55 ± 1.558</td>
<td>2.00 ± 2.117</td>
<td>0.348</td>
</tr>
<tr>
<td>Average pain score</td>
<td>1.79 ± 1.400</td>
<td>2.01 ± 1.650</td>
<td>0.625</td>
</tr>
</tbody>
</table>

The pain scores are shown in the format of mean ± S.D.
This study has some limitations. The surgeons who performed the cystoscopy were urologic residents; therefore, it was impossible to schedule a single surgeon to perform all the procedures. Surgeons with differing skill levels may have been the cause of the varied severities of pain. For better accuracy and reliability, a single surgeon is required.

Conclusion

Owing to the low level of baseline pain in this study, pre-emptive paracetamol has no efficacy in the reduction of cystoscopy-related pain. As a result, any kind of pre-emptive analgesia in addition to lidocaine gel may not be essential in the cystoscopy procedure.

References