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Effect of intravenous dexamethasone on the duration of postoperative analgesia for popliteal sciatic nerve block: a randomized, double-blind, placebo-controlled study

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Running Title: optimal dose of intravenous dexamethasone

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Effect of intravenous dexamethasone on the duration of postoperative analgesia for popliteal sciatic nerve block: a randomized, double-blind, placebo-controlled study
Abstract

**Background:** Intravenous (IV) dexamethasone prolongs the duration of peripheral nerve block; however, there is little available information about the optimal effective dose. This study aimed to evaluate the effects of three different doses of IV dexamethasone on the duration of postoperative analgesia to determine the optimal effective dose for sciatic nerve block.

**Methods:** Patients scheduled for foot and ankle surgery were randomly assigned to receive normal saline or IV dexamethasone 2.5 mg, 5 mg, or 10 mg. Ultrasound-guided popliteal sciatic nerve block was performed using 0.75% ropivacaine (20 mL) before general anesthesia. The duration of postoperative analgesia was the primary outcome, and pain scores, use of rescue analgesics, block onset time, incidence of postoperative nausea and vomiting, adverse effects, and patient satisfaction were assessed as secondary outcomes.

**Results:** Compared with the control group, the postoperative analgesic duration of sciatic nerve block was prolonged in groups receiving IV dexamethasone 10 mg ($P < 0.001$), but not the groups receiving IV dexamethasone 2.5 mg or 5 mg. The use of rescue analgesics was significantly different among the 4 groups 24 h postoperatively ($P = 0.004$) and similar thereafter. However, pain scores were not significantly different among the 4 groups 24 h postoperatively. There were no statistically significant differences in other secondary outcomes among the 4 groups.

**Conclusions:** This study demonstrated that compared with control, only IV dexamethasone 10 mg increased the duration of postoperative analgesia following sciatic nerve block for foot and ankle surgery without occurrence of adverse events.

**Keywords:** adjuvant, analgesia, ankle, dexamethasone, foot, intravenous, nerve block, sciatic nerve.
**Introduction**

Despite its efficacy, the main disadvantage of single-injection peripheral nerve block is the limited duration of analgesia. To overcome this shortcoming, several adjuvants to local anesthetic (LA) have been investigated [1-4]. Among them, dexamethasone is an effective adjuvant, regardless of whether it is administered perineurally or intravenously [1]. However, perineural administration of dexamethasone remains an off-label use due to potential neurotoxicity [5]. In addition, there is concern about the potential hazard of precipitation when LA is mixed with dexamethasone [6]. Thus, intravenous (IV) administration of dexamethasone can be an alternative option, although perineural dexamethasone was superior to IV dexamethasone in prolonging postoperative analgesia in a previous study [7]. Contrary to perineural dexamethasone, dose-finding studies investigating IV dexamethasone, especially for lower extremity blocks, remain scarce.

Therefore, we compared the effect of three different IV dexamethasone doses on postoperative analgesic duration after ultrasound-guided popliteal sciatic nerve block to determine the optimal effective dose of dexamethasone as an adjuvant. We hypothesized that 2.5 mg, 5 mg, and 10 mg of IV dexamethasone would increase postoperative analgesic duration of sciatic nerve block by at least 25% compared with the control group. The primary outcome was the duration of postoperative analgesia. Secondary outcomes included pain scores, use of rescue analgesics, onset time to sensory and motor block, the incidence of postoperative nausea and vomiting (PONV), adverse effects, and patient satisfaction.
Materials and methods

This study was approved by the Institutional Review Board of Inha University Hospital (Incheon, South Korea; #2016-050-014), and registered with the Clinical Trial Registry of Korea (https://cris.nih.go.kr/cris/index.jsp, Identifier: KCT0002486, Principal investigator: Jang Ho Song, Date of registration: 4.04.2017) before patient enrollment. Adult inpatients with American Society of Anesthesiologists physical status I–III scheduled to undergo foot and ankle surgery, with surgical incision expected to be outside of the saphenous nerve territory were considered to be eligible for inclusion. In case of ankle fracture, we excluded patients who expected undergo surgical procedure with medial ankle incision and open reduction and internal fixation with plate fixation. Patients with contraindications to regional anesthesia, body mass index > 35 kg/m², pre-existing neuropathy, diabetes, chronic steroid or opioid use, allergy to study medications, or pregnancy were excluded. Written informed consent was obtained from all patients.

Using a computer-generated random assignment concealment method with sealed envelopes, patients were randomly allocated to receive IV saline 0.9% (control [group C]) or a dexamethasone (5 mg/mL) dose of 2.5 mg (group D2.5), 5 mg (group D5), or 10 mg (group D10) [8]. Sciatic nerve block was performed under ultrasound guidance using 20 mL of ropivacaine 0.75%. We chose this type of local anesthetic to hasten onset time of block and prolong its duration [9-11]. Sealed envelopes with the study group allocation were opened before block placement, and study solutions were prepared with syringes containing 2 mL by one of the authors not involved in performing blocks, patient care, or outcome assessment. The study drug was administered before block placement. Patients, the anesthesiologist performing the blocks, surgeons, and outcome assessors were blinded to group allocation.

Block technique
Standard monitoring, including electrocardiogram, noninvasive blood pressure monitoring and pulse oximetry, were applied along with supplemental oxygen on arrival to the induction room and used throughout the procedure. All patients received IV midazolam (0.03 mg/kg) and fentanyl (1 µg/kg) for sedation and anxiolysis before the block. All blocks were performed by the same anesthesiologist. Patients received sciatic nerve block via a popliteal approach, with a portable ultrasound unit equipped with a 6–13 MHz linear probe (Vivid q, GE Healthcare, Madison, WI, USA) and an 80 mm 22-gauge needle (UniPlex NanoLine, Pajunk, Geisingen, Germany). The nerve stimulator was set at 0.5 mA, 0.1 ms, and 1 Hz. Patients were placed in the lateral decubitus position, with the operative leg in a non-dependent position. The tibial nerve was first identified at the popliteal crease. Subsequently, it was followed proximally until it merged with the common peroneal nerve. After disinfection and skin infiltration with 2% lidocaine (2 mL), the needle was advanced using an out-of-plane technique until its tip was positioned between the tibial and peroneal nerves inside the paraneural sheath [12]. A small volume (≤ 1 mL) of saline was initially injected to ensure that the needle tip was correctly positioned. After negative aspiration, 20 mL of ropivacaine 0.75% was injected incrementally. Any adverse event (such as vascular puncture, LA toxicity, or unintentional paresthesia) during block administration was noted.

Block assessment

Following block administration, two investigators evaluated sensory and motor block onset every 5 min for 30 min. Sensory block was assessed in the tibial (plantar surface of the foot) and peroneal (dorsum of the foot) nerves using a cold test and the following scale: 0 = normal sensation, 1 = less cold, and 2 = not cold, when compared with the contralateral extremity. Motor block (plantar flexion for the tibial nerve and dorsiflexion for the peroneal nerve) was assessed using the following scale: 0 = no block, 1 = paresis, and 2 = paralysis. The onset time to sensory (time after completion
of LA injection to loss of cold sensation in all nerve territories) and motor (time after completion of LA injection to paralysis of the tibial and peroneal nerve) block were recorded. Block success was defined as analgesia in the tibial and peroneal nerve and lack of requirement for supplementary analgesics for pain in the surgical field in the post-anesthesia care unit (PACU). Only patients with successful blocks were included in the study.

**Perioperative management**

Due to relatively long time of tourniquet compression and assess the exact cause of postoperative pain (sciatic or saphenous nerve territory), patients underwent standard general anesthesia by the blinded attending anesthesiologist after the 30 min evaluation. Anesthesia was induced using propofol with endotracheal intubation facilitated by cisatracurium. Anesthesia was maintained using 40% oxygen in air mixture and 2–3% sevoflurane. Muscle relaxation was antagonized using pyridostigmine and glycopyrrolate. After the surgical procedure, patients were transferred to the PACU and remained there until they met the PACU discharge criteria.

In the PACU, pain scores were assessed using a numerical rating scale (NRS) for pain (0 = no pain, 10 = worst possible pain) at 30 min. Patients reporting an NRS score > 3 were administered IV fentanyl 25 µg every 10 min until comfortable. If patients reported medial ankle pain, the patient was excluded from the study.

Postoperative analgesia was standardized. All patients received 1 g of IV paracetamol every 6 h, irrespective of pain status. For rescue analgesia, patients were instructed to request analgesics (diclofenac 75 mg via intramuscular route) when an NRS of > 3 was reported on the operated foot or ankle. Persistent pain was treated with 50 mg of IV tramadol. In case of persisting pain, despite the use of diclofenac and tramadol, meperidine 25 mg IV was administered.
Outcome measurement

The primary outcome was the duration of postoperative analgesia, which was defined as the time between the end of the LA injection and the first request for rescue analgesics for surgical pain in the operative extremity. For the purpose of data analysis, patients who did not request any analgesics within the first 36 h had their duration of analgesia recorded as 36 h. The primary outcome was determined from the medical record. Secondary outcomes included pain scores, use of rescue analgesics, onset time to sensory and motor block, incidence of PONV, adverse effects, and patient satisfaction. An investigator blinded to group allocation assessed the following parameters 24 h after surgery: pain scores; incidence of PONV; adverse event(s); and patient satisfaction. The use of supplemental analgesics during the first 36 h after surgery was also recorded. The incidence of PONV was noted during the first 24 h after surgery. Any adverse events (e.g., paresthesia, numbness, or motor weakness) were noted. Patient satisfaction was evaluated using an NRS (0 = very dissatisfied, 10 = very satisfied) [13]. Each patient followed-up with an attendant surgeon for several weeks to identify any neurological deficits and wound infection in the operative limb.

Statistical analysis

Sample size calculation was performed using data from a previous study that reported a postoperative analgesic duration of 15.4 h following a sciatic nerve block [14]. In the present study, a 4 h difference was considered to be clinically relevant. Assuming a standard deviation of 4 h, a calculated sample size of 18 patients was required for each group with a type I error of 0.05 and a power of 0.80. To allow for block failure and possible dropouts, 25 patients were included in each group.

Data are summarized as mean (standard deviation [SD]), median (interquartile range), or number (proportion [%]), as appropriate. Continuous variables were assessed for normality using the
Kolmogorov-Smirnov test. The primary outcome was analyzed using the Kruskal-Wallis test, and the difference between groups was analyzed using the Mann-Whitney U test with Bonferroni correction for multiple comparisons. The log-rank test was also used to analyze the Kaplan-Meier plots for block duration. Secondary outcomes were analyzed using the Kruskal-Wallis test or the Pearson $\chi^2$ test (or Fisher’s exact test) when appropriate. $P < 0.05$ was considered to be statistically significant, except for the Mann-Whitney U test used to assess between-group differences. For that comparison, $P < 0.008 (= 0.05/6)$ was considered to be statistically significant. SPSS version 19.0 (IBM Corporation, Armonk, NY, USA) for Windows (Microsoft Corporation, Redmond, WA, USA) was used for statistical analysis.
**Results**

In total, 100 patients were recruited for this study. Eight patients were excluded after randomization due to block failure (n = 6) and/or an unanticipated extensive surgery (two patients receiving autologous iliac crest bone grafting). Ten patients (one in group C, five in group D2.5, and two in groups D5 and D10) reported medial ankle pain and excluded. Patient flow through the study is illustrated in Figure 1. There were no significant differences among the four groups regarding demographic or surgical data (Table 1). No significant differences in the onset time to sensory ($P = 0.722$) and motor block ($P = 0.770$) were observed among the 4 groups (Table 2). No adverse events during block performance were observed in any groups.

The median duration of analgesia was as follows: group C, 20.0 h (18.0 – 25.5 h); group D2.5, 24.5 h (18.9–28.3 h); group D5, 25.4 h (22.0 – 31.5 h); and group D10, 30.0 h (25.9 – 36.0 h). There were significant differences among groups (Kruskal Wallis chi-squared = 13.93, df = 3, $P = 0.001$). Compared with group C, postoperative analgesic duration of sciatic nerve block was prolonged in group D10 ($P < 0.001$), but not in group D2.5 ($P = 0.265$) or D5 ($P = 0.014$). The Kaplan-Meier survival analysis of the primary outcome also suggested prolongation of analgesic duration of group D10 compared with the group C and no detectable difference between both group D2.5 and D5 and group C (Fig 2). For comparison of the survival distributions between the four groups, the log rank chi-squared statistic is 14.2 with df = 3 ($P = 0.0026$). Differences in pain scores in the PACU and 24 h after surgery were not statistically significant among the groups (Table 2). In addition, there was no significant difference in the worst pain. However, there was a significant difference in the number of patients who requested rescue analgesics among the 4 groups at 24 h (Deviance = 2654.7, df = 3, $P = 0.002$, Table 2), but not 24–36 h after surgery. There were three, four, four, and seven patients in group C, group D2.5, group D5, and group D10, respectively, who did not request any rescue analgesics during the first 36 h after block placement.
The 4 groups demonstrated a similar incidence of PONV ($P = 0.723$) (Table 3). In addition, no significant differences in adverse effects were observed among the 4 groups (Table 3). Patient satisfaction was similar in all groups ($P = 0.476$) (Table 3). On a follow-up visit performed by the surgeon 2–4 weeks postoperatively, no neurological deficits or wound infection were observed.
Discussion

We evaluated the effects of three different doses of IV dexamethasone on postoperative analgesic duration of sciatic nerve block. When compared with control, only 10 mg of IV dexamethasone increased the duration of postoperative analgesia of sciatic nerve block. Although the use of rescue analgesics was statistically different among the 4 groups 24 h after surgery, other secondary outcomes were similar among all groups.

In this study, we observed the prolonged duration of sciatic nerve block following IV dexamethasone 10mg. Although the precise mechanism is not clearly elucidated, this might be associated with systemic anti-inflammatory effects of dexamethasone [15]. To prolong block duration for postoperative pain management, several doses of dexamethasone have been used. In the case of the perineural route, doses between 1 mg and 4 mg can increase block duration in a dose-dependent manner [16]. A recent meta-analysis reported that 4 mg of perineural dexamethasone has a ceiling effect [17].

Although there was a trend toward prolongation of postoperative analgesia with IV dexamethasone compared with control in the present study, only 10 mg of IV dexamethasone resulted in a statistically significant prolongation of postoperative analgesia for sciatic nerve block. A previous study compared 3 different doses of IV dexamethasone compared with saline for interscalene block [8]. The authors reported that IV dexamethasone 2.5 mg and 10 mg increased the duration of interscalene analgesia after shoulder surgery. The discrepancy between that study and ours may be explained by differences in the type of surgery. Contrary to upper extremity surgery, foot and ankle surgery require both saphenous and sciatic nerve block for complete anesthesia and analgesia. In this study, we did not perform a saphenous block in all patients. This may have resulted in an increase in the dose of IV dexamethasone for prolonging block duration. The saphenous nerve block as a supplement to a sciatic nerve block reduced pain score after major ankle surgery [18].
accordance with this study, we observed medial ankle pain in ten patients, with 40% of arthrodesis and 60% of ankle fractures, respectively. However, another study reported that continuous sciatic nerve block without saphenous nerve block provided adequate pain relief after moderately painful ankle and foot surgery [13], which was similar to this study. This suggested that the saphenous nerve was not a major factor for postoperative pain after moderately painful ankle and foot surgery. Another factor was the inadequate sample size of our study, which may have caused a type II error in the lower dose groups while there was a trend toward prolonged duration of postoperative analgesia. Other factors may include differences in the type of nerve block, LA, or block technique, and use of other postoperative analgesic modalities.

As previously mentioned, IV dexamethasone reduce the inflammation, and it would decrease postoperative pain and analgesic consumption [19, 20]. Our study did not demonstrate a reduction in worst and average pain scores in the dexamethasone groups compared with control, probably due to the infrequent assessment of pain score and the use of multimodal analgesia. Unfortunately, we did not assess cumulative opioid use. However, the number of patients who requested analgesics was different among the 4 groups at 24 h, but not 24–36 h after surgery. These findings may suggest that IV dexamethasone did not reduce pain intensity but delayed the onset of pain after surgery.

In this study, we observed that about 30-40% of the patients had residual motor weakness after 24 hours. Previous studies reported that IV dexamethasone resulted in prolonged motor block as well as sensory block [21-23]. The prolonged motor weakness might be undesirable block-related side effects, since it might delay early mobilization and decrease patients’ satisfaction [9]. Thus, it might be a better choice of a lower concentration of LA to minimize this side effect.

Dexamethasone has been widely used as effective prophylaxis for PONV [24]; however, in this study, there were no significant differences in the incidence of PONV. In addition, no differences were found among the 4 groups in terms of adverse effects and wound healing. These findings may
be related to the fact that our study was not powered to evaluate such a difference.

This study had several limitations. The primary limitation was that different types of foot and ankle surgery were included in our study, each with different degrees of expected postoperative pain. Another was that we included surgery that mainly involved territories innervated by the sciatic nerve. However, because some territories, especially the distal tibia and medial ankle joint, are innervated by the saphenous nerve [25], it is necessary to block both nerves for complete postoperative analgesia, as previously described. This may have weakened our findings. Third, the primary outcome was the time to first analgesic request. Systemic dexamethasone can affect pain score and opioid consumption [19, 20]. Other outcome variables, such as duration of sensory or motor block, would have been choices that are more applicable. Fourth, all patients received general anesthesia, which could also affect the measured variables. Finally, we used 20 mL of 0.75% ropivacaine in this study. The main purpose of this study was the dose-related effect of IV dexamethasone on block duration following sciatic nerve block. For this, it is believed that use of a lower concentration of ropivacaine for sciatic nerve block could make a bigger difference. In addition, our findings cannot be extrapolated to other concentrations and volumes of LA or other types of LA.

In conclusion, results of the present study demonstrated that compared with control, only IV dexamethasone 10 mg increased the duration of postoperative analgesia following sciatic nerve block for foot and ankle surgery without the occurrence of adverse events.
References


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Table 1. Demographic and surgical data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group C (n = 23)</th>
<th>Group D2.5 (n = 18)</th>
<th>Group D5 (n = 21)</th>
<th>Group D10 (n = 20)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yr)</td>
<td>53 ± 14</td>
<td>52 ± 14</td>
<td>54 ± 15</td>
<td>55 ± 11</td>
<td>0.870</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>66 ± 14</td>
<td>60 ± 10</td>
<td>61 ± 12</td>
<td>66 ± 11</td>
<td>0.210</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>162 ± 9</td>
<td>161 ± 10</td>
<td>160 ± 8</td>
<td>161 ± 11</td>
<td>0.904</td>
</tr>
<tr>
<td>Sex (male/female)</td>
<td>7/16</td>
<td>6/12</td>
<td>7/14</td>
<td>7/13</td>
<td>0.991</td>
</tr>
<tr>
<td>ASA physical status (I/II/III)</td>
<td>14/8/1</td>
<td>12/5/1</td>
<td>12/9/0</td>
<td>11/9/0</td>
<td>0.776</td>
</tr>
<tr>
<td>Tourniquet time (min)</td>
<td>100 ± 32</td>
<td>94 ± 30</td>
<td>93 ± 22</td>
<td>102 ± 42</td>
<td>0.745</td>
</tr>
<tr>
<td>Duration of surgery (min)</td>
<td>111 ± 43</td>
<td>104 ± 38</td>
<td>104 ± 43</td>
<td>111 ± 51</td>
<td>0.900</td>
</tr>
<tr>
<td>Surgical procedure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.547</td>
</tr>
<tr>
<td>Ankle fracture osteosynthesis</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Hallux valgus correction</td>
<td>13</td>
<td>6</td>
<td>12</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Ankle arthrodesis</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Data presented as mean ± standard deviation or n. C: Control, D2.5: dexamethasone 2.5 mg, D5: dexamethasone 5 mg, D10: dexamethasone 10 mg. ASA, American Society of Anesthesiologists.
### Table 2. Secondary outcomes of onset time to sensory and motor block, pain scores, and rescue analgesics

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Group C (n = 23)</th>
<th>Group D2.5 (n = 18)</th>
<th>Group D5 (n = 21)</th>
<th>Group D10 (n = 20)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset time (min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensory block</td>
<td>10 (10 – 15)</td>
<td>15 (6 – 25)</td>
<td>15 (8 – 20)</td>
<td>15 (10 – 15)</td>
<td>0.710</td>
</tr>
<tr>
<td>Motor block</td>
<td>20 (15 – 30)</td>
<td>25 (11 – 30)</td>
<td>25 (20 – 30)</td>
<td>20 (15 – 30)</td>
<td>0.848</td>
</tr>
<tr>
<td>Pain score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In PACU</td>
<td>0 (0 – 0)</td>
<td>0 (0 – 0)</td>
<td>0 (0 – 0)</td>
<td>0 (0 – 0)</td>
<td>0.337</td>
</tr>
<tr>
<td>At 24 h</td>
<td>3 (0 – 5)</td>
<td>5 (3 – 6)</td>
<td>4 (2 – 5)</td>
<td>3 (0 – 5)</td>
<td>0.147</td>
</tr>
<tr>
<td>Worst pain</td>
<td>7 (4 – 8)</td>
<td>8 (4 – 9)</td>
<td>6 (3 – 9)</td>
<td>4 (1 – 8)</td>
<td>0.139</td>
</tr>
<tr>
<td>*Rescue analgesics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–24 h after surgery</td>
<td>20(87)/7(30)</td>
<td>12(67)/3(17)</td>
<td>11(52)/5(24)</td>
<td>7(35)/5(25)</td>
<td>0.002</td>
</tr>
<tr>
<td>24–36 h after surgery</td>
<td>10(43)/2(9)</td>
<td>6(33)/0(0)</td>
<td>12(57)/2(10)</td>
<td>9(45)/0(0)</td>
<td>0.520</td>
</tr>
</tbody>
</table>

Data presented as median (interquartile range) or n (%), unless otherwise indicated. *Rescue analgesics was presented as number of patients (%) with use of non-opioid/opioid analgesic. C: Control, D2.5: dexamethasone 2.5 mg, D5: dexamethasone 5 mg, D10: dexamethasone 10 mg. PACU, Post-anesthesia care unit.
Table 3. Secondary outcomes of incidence of PONV, adverse effects, and patient satisfaction

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group C (n = 23)</th>
<th>Group D2.5 (n = 18)</th>
<th>Group D5 (n = 21)</th>
<th>Group D10 (n = 20)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>PONV</td>
<td>4 (17.4)</td>
<td>1 (5.6)</td>
<td>3 (14.3)</td>
<td>3 (15.0)</td>
<td>0.723</td>
</tr>
<tr>
<td>Paresthesia</td>
<td>16 (69.6)</td>
<td>11 (61.1)</td>
<td>13 (61.9)</td>
<td>13 (65.0)</td>
<td>0.938</td>
</tr>
<tr>
<td>Motor weakness</td>
<td>7 (29.2)</td>
<td>6 (36.4)</td>
<td>7 (34.8)</td>
<td>9 (40.9)</td>
<td>0.771</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>10 (9 – 10)</td>
<td>10 (9 – 10)</td>
<td>9 (8 – 10)</td>
<td>10 (9 – 10)</td>
<td>0.476</td>
</tr>
</tbody>
</table>

Data presented as n (%) or median (interquartile range), unless otherwise indicated. C: Control, D2.5: dexamethasone 2.5 mg, D5: dexamethasone 5 mg, D10: dexamethasone 10 mg. PONV, post-operative nausea and vomiting.
Fig. 1. CONSORT E-flowchart.
Fig. 2. Kaplan-Meier survival plot illustrating the duration of postoperative analgesia in the study groups. C: Control, D2.5: dexamethasone 2.5 mg, D5: dexamethasone 5 mg, D10: dexamethasone 10 mg.