MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.36478/makrjms.2024.10.430.435

Study to Assess the Onset and Duration of Sensory and Motor Block in Both Groups (IV Dexamethasone Compared to Normal Saline) in Patients Undergoing Below Umbilical Surgeries

[1]Rajesh Mudikar, [2]Ashish Mali, [3]Chetankumar Adrat and [4]Jagdish Naik

[1,4]Department of Anaesthesia, VDGMC, Latur, India
[2]Department of Anaesthesia, TNMC and BYL Nair Hospital, Mumbai, India
[3]Department of Anaesthesia, Gmc Jalgaon, India

ABSTRACT

Spinal anaesthesia technique is widely used for giving anaesthesia in patients undergoing below umbilical surgeries. Present study was aimed to assess the onset and duration of sensory and motor block in both groups (IV Dexamethasone compared to normal saline) in patients undergoing below umbilical surgeries. Present study was conducted in patients between the age group of 18-40 years with ASA I and ASA II grade scheduled for below umbilical surgeries requiring spinal anaesthesia, Participants were randomly allocated in 2 groups, as Group A (received 8 mg IV Dexamethasone) and Group B (received 2 ml IV normal saline 0.9%). Significant statistical differences were seen in visual analogue scale at 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 21, 22, 23 hours between group A and B. ($p<.05$) No significant differences were seen in visual analogue scale at 3 hours (p value=1), at 4 hours(p value=1), at 14 hours(p value=0.927), at 20 hours(p value=0.156), at 24 hours(p value=0.856) between group A and B. Mean duration of anaesthesia(minutes) in group A was 184.3±3.78 which was significantly higher as compared to group B (169.38±6.04). ($p<.0001$). Mean duration of analgesia(minutes) in group A was 379.2±9.91 which was significantly higher as compared to group B (289.68±15.97). ($p<.0001$). Proportion of patients who did not require rescue analgesia was significantly higher in group A as compared to group B. ($P<0.0001$). Preoperative administration of i.v. dexamethasone just after administration of spinal anaesthesia shows early onset of sensory block, increases the duration of sensory and motor block. It also causes decreases VAS scores in postoperative period, reduces requirement and frequency of rescue analgesia.

OPEN ACCESS

Key Words
Dexamethasone, spinal anaesthesia, sensory block, rescue analgesia infraumbilical surgery

Corresponding Author
Ashish Mali,
Department of Anaesthesia, TNMC and BYL Nair Hospital, Mumbai, India
dr-ashishmali@yahoo.com

Author Designation
[1,3]Senior Resident
[2]Additional Associate Professor
[4]Assistant Professor

Received: 26 August 2024
Accepted: 01 September 2024
Published: 24 September 2024

Citation: Rajesh Mudikar, Ashish Mali, Chetankumar Adrat and Jagdish Naik, 2024. Study to Assess the Onset and Duration of Sensory and Motor Block in Both Groups (IV Dexamethasone Compared to Normal Saline) in Patients Undergoing Below Umbilical Surgeries. Res. J. Med. Sci., 18: 430-435, doi: 10.36478/makrjms. 2024.10.430.435

INTRODUCTION

Spinal anaesthesia technique is widely used for giving anaesthesia in patients undergoing below umbilical surgeries. Unwanted effects of anesthetic drugs which are used during general anaesthesia, stress of laryngoscopy and tracheal intubation can be avoided with the use of regional anaesthesia[1]. Hence spinal anaesthesia technique have an upper hand over general anaesthesia for below umbilical surgeries.

The duration of sensory block and analgesia is relatively short with single shot subarachnoid block. Inadequate pain relief results in delayed recovery, mobilization, pharmacological intervention causing prolong hospital stay ultimately increased health-care cost. Hence, along with local anesthetic in the spinal anaesthesia adjuvants such as fentanyl, morphine, clonidine, pethidine, dexmedetomidine, dexamethasone is used by various routes[2]. However, these may lead to certain side effects such as sedation, nausea, vomiting, pruritus, respiratory depression, hypotension, psychotomimetic effects, etc[3].

There are some drugs like dexamethasone which have action on the sensory motor blockage of the spinal drugs and have minimal side effects and even beneficial effects in the post-operative period[4,5]. Glucocorticoids are strong anti-inflammatory agents, which can be used for short time post- operative pain control in various surgeries[6,7]. Dexamethasone has also an anti-emetic effect, in addition to its anti-inflammatory and analgesic effects[8]. Present study was aimed to assess the onset and duration of sensory and motor block in both groups (IV Dexamethasone compared to normal saline) in patients undergoing below umbilical surgeries.

MATERIALS AND METHODS

Present study was single-center, prospective, comparative study, conducted in department of anaesthesiology, at XXX medical college and hospital, XXX, India. Study duration was of 3 years (JUNE 2019-JUNE 2022). Study was approved by institutional ethical committee.

The study was conducted in the surgery, orthopaedic, urology Operation theatre, recovery room and respective wards. Patients between the age group of 18-40 years with ASA I and ASA II grade scheduled for below umbilical surgeries requiring spinal anaesthesia, willing to participate in present study, were included. Study was explained to participants in local language and written informed consent was taken. Preoperatively detailed history, systemic examination was done. Investigations (complete blood count, chest x ray, Liver function test, renal function test plus any other investigation carried out as per requirement of surgery) were checked and noted. On the day of surgery nil by mouth status of at least 6 hrs. was confirmed.

Patient were shifted to operation theater, all monitors were attached like non-invasive blood pressure, pulse oximeter, cardio scope and baseline parameters were noted. An i.v. line was taken and injection pantoprazole 40mg, injection Ondensetron 4mg given i.v to all patients. Patients received 10ml/kg of ringer lactate solution IV before anaesthesia to maintain a stable blood pressure as per loading.

Participants were randomly allocated in 2 groups,

- **Group A:** Received 8 mg IV Dexamethasone immediately after spinal anaesthesia.
- **Group B:** Received 2 ml IV normal saline 0.9% immediately after spinal anaesthesia.

Spinal anaesthesia in L3-L4 interspace through a 23 G-spinal needle will be provided by 30mg (3cc) of inj. Bupivacaine heavy 0.5%, in sitting position. Intraoperative sensory blockade by pin prick and motor blockade by modified Bromage scale was measured every minute for first five minutes then at 5 min interval till 30 minutes then every half hourly till 3 hours. Post-operative motor blockade was measured by modified bromage scale and sensory blockade by pin prick.

Postoperative pain measured by visual analogue scale at 30 min, 1 hour, 1.5 hr., 2 hour, 2.5 hr,3 hrs,4 hrs., then every hourly till 24 hrs. Patient with VAS score recording >4, given rescue analgesia 2mg/kg of inj. Tramadol followed by 1.5mg/kg of inj. diclofenac will be second rescue analgesic intravenously, if first rescue analgesia is less effective (when VAS >4 within 8 hrs.). The time for first administration of rescue analgesia, number of times and number of patients who required rescue analgesia was recorded.

The data entry was done in the Microsoft EXCEL spreadsheet and the final analysis was done with the use of Statistical Package for Social Sciences (SPSS) software, IBM manufacturer, Chicago, USA, ver 21.0. For statistical significance, $p<0.05$ was considered statistically significant.

RESULTS AND DISCUSSIONS

The study was conducted in 100 patients who had undergone below umbilical surgeries. Distribution of demographic characteristics was comparable between group A and B. (Age in years, gender and ASA grade (p value=1)). Mean±SD of age(years) in group A was 29.74±6.52 and group B was 29.9±6.65 with no

significant statistical difference between them. (pvalue=0.904)

Table 1: Comparison of Demographic Characteristics Between Group A and B.

Demographic characteristics	Group A(n=50)	Group B(n=50)	Total	P-value
Age(years)				
20-30	25 (50%)	25 (50%)	50 (50%)	1
31-40	25 (50%)	25 (50%)	50 (50%)	
Mean±SD	29.74 ± 6.52	29.9 ± 6.65	29.82 ± 6.55	0.904*
Gender				
Female	10 (20%)	10 (20%)	20 (20%)	1
Male	40 (80%)	40 (80%)	80 (80%)	
ASA grade				
I	20 (40%)	20 (40%)	40 (40%)	1
II	30 (60%)	30 (60%)	60 (60%)	

* Independent t test, $Chi square test

Sensory blockade was not done at 1 minute and at 2 minutes in all patients. All the patients had sensory blockade of T12 at 5 minutes and T10 at 10 minutes. Significant statistical difference was seen in sensory blockade at 3 minutes, at 15 minutes, at 20 minutes, at 2 hours, at 2.5 hours, at 3 hours, at 4 hours between group A and B. (p<0.05) Distribution of sensory blockade at other time intervals was comparable between group A and B.

Table 2: Comparison of Sensory Blockade Between Group A and B.

	Sensory blockade	Group A(n=50)	Group B(n=50)	Total	P-value
At 1 minute	Nil	50 (100%)	50 (100%)	100 (100%)	-
At 2 minutes	Nil	50 (100%)	50 (100%)	100 (100%)	-
At 3 minutes	Nil	5 (10%)	0 (0%)	5 (5%)	<.0001‡
	L1	5 (10%)	0 (0%)	5 (5%)	
	L2	20 (40%)	0 (0%)	20 (20%)	
	L3	0 (0%)	16 (32%)	16 (16%)	
	L5	20 (40%)	34 (68%)	54 (54%)	
At 4 minutes	Nil	5 (10%)	0 (0%)	5 (5%)	0.056‡
	T12	45 (90%)	50 (100%)	95 (95%)	
At 5 minutes	T12	50 (100%)	50 (100%)	100 (100%)	-
At 10 minutes	T10	50 (100%)	50 (100%)	100 (100%)	-
At 15 minutes	T6	50 (100%)	29 (58%)	79 (79%)	<.0001‡
	T10	0 (0%)	21 (42%)	21 (21%)	
At 20 minutes	T6	50 (100%)	30 (60%)	80 (80%)	<.0001‡
	T10	0 (0%)	20 (40%)	20 (20%)	
At 25 minutes	T6	40 (80%)	40 (80%)	80 (80%)	1§
	T10	10 (20%)	10 (20%)	20 (20%)	
At 30 minutes	T6	40 (80%)	41 (82%)	81 (81%)	0.799§
	T10	10 (20%)	9 (18%)	19 (19%)	
At 1 hour	T6	40 (80%)	39 (78%)	79 (79%)	0.806§
	T10	10 (20%)	11 (22%)	21 (21%)	
At 1.5 hours	T6	40 (80%)	39 (78%)	79 (79%)	0.806§
	T10	10 (20%)	11 (22%)	21 (21%)	
At 2 hours	T6	5 (10%)	5 (10%)	10 (10%)	0.002§
	T10	40 (80%)	25 (50%)	65 (65%)	
	T12	5 (10%)	20 (40%)	25 (25%)	
At 2.5 hours	L5	0 (0%)	16 (32%)	16 (16%)	<.0001§
	L12	0 (0%)	20 (40%)	20 (20%)	
	T10	20 (40%)	0 (0%)	20 (20%)	
	T12	30 (60%)	14 (28%)	44 (44%)	
At 3 hours	Nil	0 (0%)	15 (30%)	15 (15%)	<.0001‡
	L5	0 (0%)	35 (70%)	35 (35%)	
	T5	5 (10%)	0 (0%)	5 (5%)	
	T12	45 (90%)	0 (0%)	45 (45%)	
At 4 hours	Nil	0 (0%)	50 (100%)	50 (50%)	<.0001‡
	L5	50 (100%)	0 (0%)	50 (50%)	

‡Fisher's exact test, §Chi square test

All the patients were able to move the hip, knee and ankle at 1 minute, at 2 minutes. All the patients were unable to move the hip, knee and ankle at 10 minutes, at 15 minutes, at 20 minutes, at 25 minutes, at 30 minutes, at 1 hour, at 1.5 hours. All the patients were unable to move the hip and knee, but able to move the ankle at 5 minutes. Significant statistical difference was seen in motor blockade at 3 minutes, at 4 minutes, at 2 hours, at 2.5 hours, at 3 hours, at 4 hours between group A and B. It is shown in table 3, figure 3.1, 3.2 and 3.3.

Significant statistical differences were seen in visual analogue scale at 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 21, 22, 23 hours between group A and B.(p<.05) No significant differences were seen in visual analogue scale at 3 hours (p value=1), at 4 hours(p value=1), at 14 hours(p value=0.927), at 20 hours(p value=0.156), at 24 hours(p value=0.856) between group A and B.

Mean duration of anaesthesia(minutes) in group A was 184.3±3.78 which was significantly higher as compared to group B (169.38±6.04). (p<.0001). Mean duration of analgesia(minutes) in group A was 379.2±9.91 which was significantly higher as compared to group B (289.68±15.97) (p<.0001). Proportion of patients who did not require rescue analgesia was significantly higher in group A as compared to group B. (p<0.0001). There are so many different methods for giving analgesia such as patient control anaesthesia, cryoanalgesia, regional anaesthesia, administering i.v analgesic drugs, etc. There are also many drugs for peri-operative pain relief such as non-steroidal anti-inflammatory drugs, glucocorticoids, opioids, etc. Hence, drugs prolonging the spinal action having minimal side effects are preferred[6,7].

Distribution of demographic characteristics was comparable between group A and B. (Age in years, gender and ASA grade (p value=1)). Mean±SD of age(years) in group A was 29.74±6.52 and group B was 29.9±6.65 with no significant statistical difference between them. (p value=0.904).

A study conducted by Mohtadi[9] shows that mean age(years) of patients in study group was 46.7±57.8 and in control group it was 47.26±5.93. (p-value=0.600). Number of males and females in study group was 14 and 47 respectively. Number of males and females in control group was 15 and 46 respectively showing female predominance. This is exactly opposite to our study as our study shows male predominance.

Study done by Babu[10] shows that mean age(years) of patients in study group was 37.73±15.09 and in control group it was 41.07±10.96. This value is more than mean age in our study in both study and control group.

Study done by Bisgaard[11] shows that mean age(years) of patients in study group was 46 years and in control group mean age was 39 years. This value is higher than mean age in our study. Sex ratio in study group was 13:27 and in control group it was 7:33 showing female predominance, which is contradictory to the outcome of our study.

In our study, Sensory blockade was not done at 1 minute and at 2 minutes in all patients. All the patients

Table 3: Comparison of Motor Blockade Between Group A and B.

	Motor blockade	Group A(n=50)	Group B(n=50)	Total	P-value
At 1 minute	The patient is able to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 2 minutes	The patient is able to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 3 minutes	The patient is able to move the hip, knee and ankle	5 (10%)	0 (0%)	5 (5%)	<.0001‡
	The patient is unable to move hip, but is able to move the knee and ankle	25 (50%)	50 (100%)	75 (75%)	
	The patient is unable to move the hip and knee, but able to move the ankle	20 (40%)	0 (0%)	20 (20%)	
At 4 minutes	The patient is able to move the hip, knee and ankle	5 (10%)	0 (0%)	5 (5%)	<.0001‡
	The patient is unable to move the hip and knee, but able to move the ankle	45 (90%)	40 (80%)	85 (85%)	
	The patient is unable to move the hip, knee and ankle	0 (0%)	10 (20%)	10 (10%)	
At 5 minutes	The patient is unable to move the hip and knee, but able to move the ankle	50 (100%)	50 (100%)	100 (100%)	-
At 10 minutes	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 15 minutes	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 20 minutes	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 25 minutes	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 30 minutes	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 1 hour	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 1.5 hours	The patient is unable to move the hip, knee and ankle	50 (100%)	50 (100%)	100 (100%)	-
At 2 hours	The patient is unable to move the hip and knee, but able to move the ankle	0 (0%)	25 (50%)	25 (25%)	<.0001‡
	The patient is unable to move the hip, knee and ankle	50 (100%)	25 (50%)	75 (75%)	
At 2.5 hours	The patient is unable to move hip, but is able to move the knee and ankle	0 (0%)	15 (30%)	15 (15%)	<.0001§
	The patient is unable to move the hip and knee, but able to move the ankle	0 (0%)	35 (70%)	35 (35%)	
	The patient is unable to move the hip, knee and ankle	50 (100%)	0 (0%)	50 (50%)	
At 3 hours	The patient is able to move the hip, knee and ankle	0 (0%)	15 (30%)	15 (15%)	<.0001§
	The patient is unable to move hip, but is able to move the knee and ankle	0 (0%)	35 (70%)	35 (35%)	
	The patient is unable to move the hip and knee, but able to move the ankle	15 (30%)	0 (0%)	15 (15%)	
	The patient is unable to move the hip, knee and ankle	35 (70%)	0 (0%)	35 (35%)	
At 4 hours	The patient is able to move the hip, knee and ankle	0 (0%)	50 (100%)	50 (50%)	<.0001§
	The patient is unable to move hip, but is able to move the knee and ankle	28 (56%)	0 (0%)	28 (28%)	
	The patient is unable to move the hip and knee, but able to move the ankle	22 (44%)	0 (0%)	22 (22%)	

‡Fisher's exact test, §Chi square test

Table 4: -Comparison of Visual Analogue Scale Between Group A and B.

Visual analogue scale	Group (n=50)	Group B(n=50)	Total	P-value
At 3 hours	0 ± 0	0 ± 0	0 ± 0	1†
At 4 hours	0 ± 0	0 ± 0	0 ± 0	1†
At 5 hours	0 ± 0	0.5 ± 0.81	0.25 ± 0.63	<.0001†
At 6 hours	0 ± 0	1.12 ± 0.82	0.56 ± 0.81	<.0001†
At 7 hours	0 ± 0	2.44 ± 1.16	1.22 ± 1.47	<.0001†
At 8 hours	1.1 ± 0.84	2.64 ± 1.24	1.87 ± 1.31	<.0001†
At 9 hours	1.5 ± 1.22	3.56 ± 1.67	2.53 ± 1.78	<.0001†
At 10 hours	2.2 ± 1.09	4.92 ± 1.23	3.56 ± 1.79	<.0001†
At 12 hours	2.6 ± 0.93	4.28 ± 1.07	3.44 ± 1.31	<.0001†
At 13 hours	3 ± 1.28	3.76 ± 1.38	3.38 ± 1.38	0.003†
At 14 hours	3.2 ± 1.34	3.2 ± 1.34	3.2 ± 1.33	0.927†
At 15 hours	3.3 ± 1.28	2.04 ± 1.6	2.67 ± 1.58	<.0001†
At 16 hours	3.2 ± 1.62	1.44 ± 1.63	2.32 ± 1.84	<.0001†
At 17 hours	3.4 ± 1.44	1.78 ± 1.84	2.59 ± 1.84	<.0001†
At 18 hours	3.4 ± 1.7	2.12 ± 1.91	2.76 ± 1.91	0.0002†
At 19 hours	3.4 ± 1.51	2.84 ± 1.57	3.12 ± 1.56	0.02†
At 20 hours	2.9 ± 1.31	3.4 ± 1.29	3.15 ± 1.32	0.156†
At 21 hours	3.1 ± 1.72	4.24 ± 1.13	3.67 ± 1.56	0.003†
At 22 hours	3.1 ± 1.72	4.6 ± 0.81	3.85 ± 1.53	<.0001†
At 23 hours	3.5 ± 1.37	4.22 ± 0.89	3.86 ± 1.21	0.0005†
At 24 hours	4.1 ± 1.23	3.9 ± 1.59	4 ± 1.42	0.856†

† Mann Whitney test

Table 5: Comparison of Anaesthesia and Analgesia Between Group A and B.

	Group A(n=50)	Group B(n=50)	Total	P-value
Duration of anaesthesia (minutes)	184.3 ± 3.78	169.38 ± 6.04	176.84 ± 9.02	<.0001*
Duration of analgesia (minutes)	379.2 ± 9.91	289.68 ± 15.97	334.44 ± 46.89	<.0001*
Rescue analgesia				
None	31 (62%)	0 (0%)	31 (31%)	
Inj Tramadol 100Mg	19 (38%)	36 (72%)	55 (55%)	
Inj Tramadol 100Mg, Inj. Diclofenac 75Mg	0 (0%)	14 (28%)	14 (14%)	<.0001§

* Independent t test, §Chi square test

had sensory blockade of T12 at 5 minutes and T10 at 10 minutes. Significant statistical difference was seen in sensory blockade at 3 minutes, at 15 minutes, at 20 minutes, at 2 hours, at 2.5 hours, at 3 hours, at 4 hours between group A and B. (p<0.05) Distribution of sensory blockade at other time intervals was comparable in group A and B.

Study done by Babu[10] shows that time to achieve maximum sensory blockade(minutes) was 3.1±0.66 in study group and 3.23±0.62 in control group. (p value= 0.43), Mean time for regression of sensory blockade <L1 was 254.67±24.98 in study group and 220.17±24.93 in control group. (p value=<0.001) Study done by Shalu[12] shows that mean duration of sensory

block in study group was 162.50 min, whereas in control group, it was 106.17 min which was statistically significant with P<0.001.

Study done by Babu[10] shows that time to achieve complete motor blockade to bromage scale 3(minutes) was 5.56±1.09 in study group and 5.53±1.09 in control group. (p value=0.91), Mean time for regression of motor blockade to bromage scale 0 was 220.17±24.93 in study group and 203.83±24.09 in control group. (p value=<0.001) Study done by Shalu[12] shows that mean duration of motor block in study group and control group was 169.5 min and 163.17 mins respectively which was not statistically significant (P>0.05)

In our study following outcomes were noted during Comparison of visual analogue scale between group A and B (Table 4, Fig. 4),Significant statistical differences were seen in visual analogue scale at 5, 6, 7, 8, 9, 10, 12, 13, 15, 16, 17, 18, 19, 21, 22, 23 hours between group A and B.(p<.05), No significant differences were seen in visual analogue scale at 3 hours (p value=1), at 4 hours(p value=1), at 14 hours(p value=0.927), at 20 hours(p value=0.156), at 24 hours(p value=0.856) between group A and B.

Kardash[13] shows that dynamic pain NRS score at 24 h was, however, much lower in the dexamethasone than in placebo group (2.6, 95% CI: 2.2-3.0 vs 6.9, 95% CI: 6.5-7.3, respectively., P<0.0001). This significant effect remained in an adjusted analysis (2.7, 95% CI: 2.2-3.1 vs 6.8, 95% CI: 6.4-7.2., P<0.0001), considering surgical time and intraoperative propofol use.

Study done by Shahraki[14] shows that the long (24 h after cesarean section) analgesic effect of 8 mg IV Dexamethasone. Hval[15] studied 100 women candidates for breast surgery and concluded that the pre-anesthetic administration of 16 mg of IV Dexamethasone could have an analgesic effect for 3 days.

Study done by Babu[10] shows that time of request for first analgesia dose (minutes) was 297.83±29.56 in study group and 175.50±29.17 in control group. (pvalue=<0.001). Study done by Shalu[12] shows that mean time to requirement of the first rescue analgesia was 8.67 hours in study group; whereas in control group, it was 4.40 which was also of high statistically significant (P<0.001).

The main endpoint of our study, i.e., level of postoperative pain among patients who received i.v. dexamethasone, was compared with the control group (normal saline 0.9%). The obtained result in the current study was in line with the majority of the other studies that have confirmed the effectiveness of analgesic effect of dexamethasone after different surgeries. The results of our study are similar to the studies done by Jokela[16] that showed that the post caesarean administration of dexamethasone led to reduce the need for morphine and other analgesic consumption. Shahraki[14] concluded that dexamethasone could efficiently reduce postoperative pain severity and the need for analgesic consumption and improve vital signs after cesarean section. A study conducted by Mohtadi[9] concluded that single dose of i.v. dexamethasone led to less pain intensity and amounts of meperidine consumption, in comparison with placebo.

A study conducted by Kadur[17] concluded that administration of i.v. dexamethasone (0.1 mg/kg) just before subarachnoid block is an effective mode of enhancing postoperative analgesia and also reduces incidence of post operative nausea and vomiting. The study done by Murphy[18] showed that time of dexamethasone injection is important on reducing postoperative pain as well., since initiation of its biological effect is one to two hours after injection.

CONCLUSION

Preoperative administration of i.v. dexamethasone just after administration of spinal anaesthesia shows early onset of sensory block, increases the duration of sensory and motor block. It also causes decreases VAS scores in postoperative period, reduces requirement and frequency of rescue analgesia and complications in first postoperative day with no significant changes in vital signs when given in patients undergoing below umbilical surgery under spinal anaesthesia.

REFERENCES

1. Neal, J.M., J.R. Hebl, J.C. Gerancher and Q.H. Hogan, 2002. Brachial plexus anaesthesia: Essentials of our current understanding. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Reg Anesth Pain Med., 27: 1-10.0.
2. Patrick, J., 1940. Technique of brachial plexus block anaesthesia. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Br J Surg., Vol. 734 .0 1-10.0.
3. Jokela, R.M., J.V. Ahonen, M.K. Tallgren, P.C. Marjakangas and K.T. Korttila, 2009. The Effective Analgesic Dose of Dexamethasone After Laparoscopic Hysterectomy. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anest amp Analg., 109: 607-6150.0.
4. Kardash, K.J., F. Sarrazin, M.J. Tessler and A.M. Velly, 2008. Single-Dose Dexamethasone Reduces Dynamic Pain After Total Hip Arthroplasty. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anes amp Analg., 106: 1253-12570.0.
5. Wu, C.L. and S.N. Raja, 2011. Treatment of acute postoperative pain. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Lancet, 377: 1-10.0.

6. Oliveira, G.S.D., M.D. Almeida, H.T. Benzon and R.J. McCarthy, 2011. Perioperative Single Dose Systemic Dexamethasone for Postoperative Pain. Anesthesiology, 115: 575-588.
7. Khan, F.A. and M.V. Asad, 2015. Effect of a single bolus of dexamethasone on intraoperative and postoperative pain in unilateral inguinal hernia surgery. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, J. Anaes Clin. Pharmacol., 31: 1-10.0.
8. Movafegh, A., A.R. Soroush, A. Navi, M. Sadeghi and F. Esfehani,et al., 2007. The effect of intravenous administration of dexamethasone on postoperative pain, nausea, and vomiting after intrathecal injection of meperidine. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anesth Analg., 104: 1-10.0.
9. Mohtadi, A., S. Nesioonpour, A. Salari, R. Akhondzadeh, B.M. Rad and S.M.M. Aslani, 2014. The Effect of Single-Dose Administration of Dexamethasone on Postoperative Pain in Patients Undergoing Laparoscopic Cholecystectomy. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anesthesiol. Pain Med., Vol. 4 .10.5812/aapm.17872 1-10.0.
10. Babu, K., P. Parthasarathy, R.R. Rao and S. Raghuram, 2018. The effect of single-dose intravenous dexamethasone on postoperative pain and postoperative nausea and vomiting in patients undergoing surgery under spinal anesthesia: A double-blind randomized clinical study. Anesthesia: Essays Res.es, Vol. 12 .10.4103/aer.aer_159_17.
11. Bisgaard, T., B. Klarskov, H. Kehlet and J. Rosenberg, 2003. Preoperative Dexamethasone Improves Surgical Outcome After Laparoscopic Cholecystectomy. Ann. Surg., 238: 651-660.
12. Shalu, P. and P. Ghodki, 2017. To study the efficacy of intravenous dexamethasone in prolonging the duration of spinal anesthesia in elective cesarean section. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anest Essays Res.es, 11: 1-10.0.
13. Shahraki, A.D., A. Feizi, M. Jabalameli and S. Nouri, 2013. The effect of intravenous dexamethasone on post-cesarean section pain and vital signs: A double-blind randomized clinical trial. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, J Res Pharm Pract., 2: 1-10.0.
14. Kjetil, H., T.K. Sem, S. Ellen and R. Johan, 2007. The Prolonged Postoperative Analgesic Effect When Dexamethasone Is Added to a Nonsteroidal Antiinflammatory Drug (Rofecoxib) Before Breast Surgery. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anes amp Analg., 105: 1-10.0.
15. Kadur, S.N., F. Ahmed, A. Purohit, M. Khandelwal and T. Mistry, 2016. The effect of intravenous dexamethasone on postoperative pain, nausea vomiting after intrathecalpethidine and bupivacaine in lower limb orthopaedic surgeries. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anae Pain Inten Care., 19: 1-10.0.
16. Murphy, G.S., J.W. Szokol, S.B. Greenberg, M.J. Avram and J.S. Vender,et al., 2011. Preoperative dexamethasone enhances quality of recovery after laparoscopic cholecystectomy: effect on in-hospital and postdischarge recovery outcomes. 0 0, January 01-01, 1970, In: 0, 0 (Ed.)., 0 Edn., 0, 0, ISBN-1: 0, Anesthesiology, 114: 1-10.0.