

Time to Discharge Patients From Day-Case Clinic Comparison Study between Patients Received spinal Versus General Anaesthesia

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ABSTRACT:

BACK GROUND:

Day case surgery is surgery where patient returns home on same day of surgery, saving resources, money decreases in-patients number with rapid turnover. Question about the ideal type of anaesthesia for such surgery is of interest of many studies.

OBJECTIVE:

To comparing time to discharge after perianal surgery for patient received spinal anaesthesia versus patients received general anaesthesia, sample was taken between February 2007, and July 2010, in a private day clinic in Baghdad.

PATIENTS AND METHODS:

Study included 200 patients ASA(I-II), age 18-60 years. One hundred patients had been received spinal anaesthesia with small dose lidocaine 2%, other 100 were received general anaesthesia with either propofol or pentothal.

RESULTS:

Indicate that spinal anaesthesia with small dose lidocaine achieves shorter time to discharge patients versus general anaesthesia; mean time for spinal anaesthesia was 105.69min and for general was 147.57 min.

CONCLUSION:

Spinal anaesthesia is a good option for outpatient surgery in comparison to general anaesthesia regarding time to discharge patients, and we can achieve better results by simple manipulation in techniques and drug dosage which might decrease unwanted side effects of S.A.

KEY WORDS: spinal anaesthesia, day-case surgery.

INTRODUCTION:

Day-case (outpatient or ambulatory) is surgery in which patients return home on the same day of surgery, ⁽¹⁾it is planned on no resident base. ⁽²⁾Procedures appropriate for ambulatory surgery are those associated with postoperative care that is easily managed at home and with low rates of complications that require intensive physician or nursing management. ⁽³⁾

Many cases done on outpatient basis, ⁽⁴⁾60-70% of all surgical procedures are done on outpatient basis in USA, ⁽⁵⁾ cases take less than 60 min. considered suitable for day case, ⁽⁶⁾ patients with ASA class (I-II) are generally accepted for day case. ^(1,5,6)

Anesthetic option, either general or regional, for such cases is determined by patient status and acceptance, surgical, anaesthetic, and economic considerations. ^(6,7)

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Spinal anaesthesia being simple, ⁽⁸⁾better ambulation and less analgesia needed post operatively ⁽⁹⁾ is suitable for day case and its rapidly increasing in day case surgery. ⁽¹⁰⁾

Lidocaine with its rapid onset, short duration is considered ideal for day case, ⁽¹¹⁾ although there is draw back because of TNS cases reported but it still good option. ⁽¹²⁾

General anaesthesia is used in day case and the most common causes to delay discharge are pain, nausea, vomiting. ⁽¹³⁾ Shortacting anaesthetic agents (propofol, pentothal, remifentanyl, sufentanyl) and inhalational agents are considered suitable for day case. ^(1,5) Propofol now is the drug of choice for day case. ^(1,6,14)

PATIENTS AND METHODS:

Prospective study was done between 2007 and 2010 on patients presented to outpatient clinic for perianal surgery. Patients were classified according to ASA I-II and the age range from 18 to 60 years old.

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All these patients were checked by doctor and nurse to assess their status; some patients presented few days before the day of surgery others at the same day.

Explanation was done for each patient about his options of anesthesia and the choice was made according to their physical status, surgical and anesthetic considerations and the most important factor is the patient acceptance. All patients were fasting for 6 hours.

Time to discharge was calculated from starting anesthesia (spinal or general) till patient voided (discharge criterion).

Patients who decided to have spinal anesthesia were prepared by inserting IV line and 500 ml fluid started to be infused and under full aseptic technique and the patients were put in a sitting position with Toffier line was the land mark chosen to insert Quincke needle gauge 24, with the bevel faced parallel to ligamentum flavum, the needle inserted between L2-L3 or L3-L4 and after free CSF fluid flow, 1.5-2 ml lidocaine 2% was injected and the patients kept in sitting position for two minutes, and after paralysis of both legs changed to lithotomy position, this procedure took between 5 to 10 min.

After finishing the surgery, which took between 20 to 45 min., patients transferred to recovery room, and checking were for the patients every 10 min. by a nurse and a doctor, haemodynamic status and conscious level were observed.

Discharge of patients was decided by agreement with surgeon and after patients returned their sensation and power (moving legs and ability to dorsiflex the big toe) and ability to void without assistance.

Post-operative analgesia was maintained by local lidocaine gel which was applied at the end of surgery.

Patients who decided to have general anesthesia were prepared by inserting IV line and 500 ml fluid and divided into two groups; 50 patients received Tramadol 1 mg/kg, Midazolam 0.02 mg/kg, Ketamine 0.3 mg/kg, Pentothal sleeping dose (loss of eye lash reflex) and maintenance with Flothane. The other 50 patients received the same drugs except Propofol instead of Pentothal

using loss of contact with the patient as landmark of hypnosis.

All these patients with general anesthesia who needed anal dilatation were given 20 mg Scoline (depolarizing muscle relaxant) and ventilation was maintained spontaneously or manually.

After finishing the surgery and patient became to be responsive and can maintain normal breathing, the patient was transfer to recovery room and was checked by nurse and doctor and post-anesthetic discharge scoring system used with ability to void to decide when to discharge patient, also local lidocaine gel was used as analgesia post-operatively.

All of patients with general anesthesia received dexamethasone and metoclopramide pre-induction as antiemetic.

At the end of each procedure both spinal and general anesthesia cost was calculated in Iraqi dinars.

Statistical analysis

Data were entered into a computer using the statistical package for social sciences (SPSS version 20). Comparison between groups was performed by using T-test. Values of $P < 0.05$ with 95% confidence interval were considered statistically significant.

RESULTS:

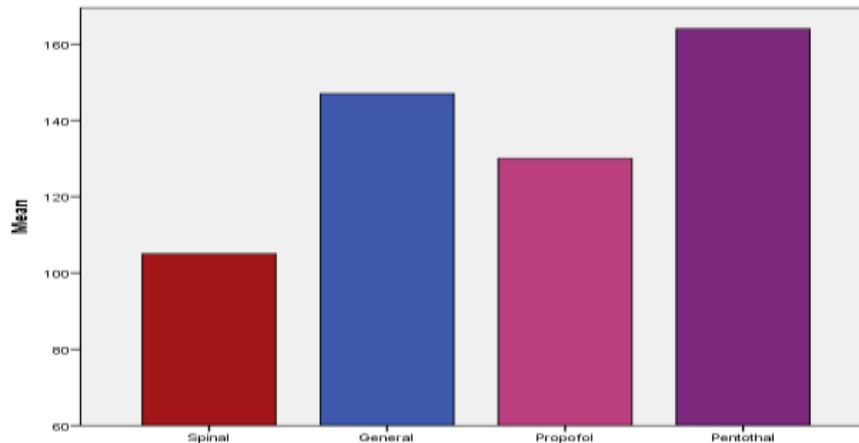
Two hundred patients were enrolled in this study all of them are class (I-II) ASA, age 18 to 60 years, no female accepted to be awake during anal surgery so they refused to have spinal anesthesia, also there was a poor knowledge about spinal anesthesia and many of patients thought that spinal anesthesia means they would feel half the pain.

Patients with spinal anesthesia needed shorter time to discharge and voided earlier than general anesthesia, mean time for spinal to void was 105.69 min with SD of 13.724 min, for general it was 147.57 min with SD of 47.072 min. Spinal anesthesia had shorter mean time to discharge patient than general anesthesia using propofol by 24.61 min. while by 59.10 min. with general anesthesia using pentothal as shown in Table 1 and Graph-1.

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Table 1: Comparison between meantime and standard deviation in minute among spinal anaesthesia, general anaesthesia with propofol and pentothal.

Type of anaesthesia	Number	Mean time in minutes	Standard deviation in minutes
Spinal	100	105.69	13.724
General	100	50	130.30
		50	164.84
		147.57	47.072
			28.048
			55.511



Graph-1: Difference in mean time to discharge patients according to type of anaesthesia.

There was significant statistical difference between time to discharge patients with spinal anaesthesia versus patients with general anaesthesia with p -value of 0.00 as shown in Table-2.

Table 2: Result of statistical analysis comparing spinal versus general.

Spinal versus General anaesthesia	t-test	df	P-value	95% Confidence Interval	
				Upper	Lower
	8.54	198	.000	32.211	51.549

The mean time to discharge patients with general anaesthesia using propofol was 130.30 min with SD of 28.048 min, while the mean time for those anaesthetised with pentothal was 164.84 min with

SD of 55.511 min. There was significant statistical difference between time to discharge patients with propofol in comparison to pentothal with p -value of 0.00 as shown in Table-3.

Table 3: Result of statistical analysis comparing propofol versus pentothal in general anaesthesia.

Propofol versus Pentothal	t-test	df	P-value	95% Confidence Interval	
				Upper	Lower
	3.927	98	.000	17.085	51.995

Analgesia postoperatively is less required after spinal anaesthesia than general. Nausea and vomiting were more in general anaesthesia than spinal in spite of antiemetics pre operatively.

Eighty per cent of patients with general anaesthesia needed IV analgesia post-operatively before discharge, while only 35% of patients with spinal anaesthesia needed analgesia post operatively.

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Satisfaction were more with spinal anaesthesia than general, 92% patients received spinal anaesthesia stated that they will accept spinal anaesthesia if they need surgery in future, 65% patients with general anaesthesia stated that they prefer to receive regional anaesthesia if they need surgery in future.

Total cost of spinal anaesthesia is less than general anaesthesia, each spinal cost between (18-20) Iraqi thousand dinars, and each general anaesthesia with pentothal, (22-25) propofol (25-30).

DISCUSSION:

This study involved 200 patients all of them were within the age range between 18 to 60 years, so the decision of type of anaesthesia was made by the patient himself legally, no female accepted to be awake during anal surgery, here social and religious factors have their role in this study, in another study female responded in different manner to spinal than male in many aspect.⁽¹⁵⁾

Question about which is best spinal or general anaesthesia is not new it had been debated since the inception of spinal anaesthesia at turn of the 20th century.⁽⁹⁾

Time to discharge patient after spinal anaesthesia with small dose lidocaine is less than time with general anaesthesia, it leads to earlier voiding as shown in Table-1, which is similar to results of other studies.^(12, 16) This result is compatible with the fact that lidocaine for spinal anaesthesia has dose related effects, which is demonstrated by the other studies, Also manipulation of the concentration and volume of the dose affect the ability of early voiding, which had been proven by other studies.⁽¹⁷⁾ Which stated that administration of 3 ml of 1% hyperbaric lidocaine produced shorter time to void than 1 ml of 3% hyperbaric lidocaine.

Using opioid with lidocaine intrathecally lead to decrease time to discharge patient, early voiding and decrease the dose of lidocaine required, but it cause pruritus in some patients.^(18, 19)

Time to discharge patient can be shortened if ability to void was not the discharge criterions, especially in patients with low risk of urine retention, if return of muscle power and sensation were used as discharge criterion, the patient would be discharged earlier, and no difference in possibility of urine retention in spinal versus general anaesthesia.⁽²⁰⁾ Study showed that usage of ability to void as discharge criterion delayed discharge time in 18% with spinal anaesthesia.⁽¹⁰⁾

Side effects of spinal anaesthesia e.g. post dural puncture headache, transient neurological

syndrome and backache can be decreased using small size needles or sprotte needles which lead to spreading of fibers rather than cutting it and less cerebrospinal fluid leakage.⁽¹⁵⁾

Only one patient returned with headache after spinal anaesthesia two days after operation and he was treated by non-steroidal anti-inflammatory drugs, may be this result because of most of patients already received non-steroidal anti-inflammatory drugs as a part of postoperative analgesia which relieve post dural puncture headache if it happened.

Regarding general anaesthesia, this study demonstrate that using propofol lead to shorter time to discharge than pentothal as shown in Table-3, but longer discharge time than spinal, which compatible with study⁽²¹⁾ but it is equal in patient with Desflurane,⁽²²⁾ but using total intravenous anaesthesia (using propofol) lead to earlier time to discharge patients than with pentothal and spinal anaesthesia using bupivacaine,⁽¹⁶⁾ or using conventional dose lidocaine in spinal anaesthesia.⁽²⁰⁾

Other studies compare spinal to general found it shorter,⁽²³⁾ longer,⁽²⁴⁾ similar⁽²⁵⁾ recovery time.

Post-operative pain, nausea and vomiting were more in patients received general than spinal anaesthesia, this result identical with result in,⁽¹⁹⁾ patients with general anaesthesia necessitated intravenous pain medications in greater amount than spinal, also they needed more medication for nausea/vomiting.⁽⁸⁾ Regarding pruritus, no patient complained from it, in other studies which indicate that pruritus occurs in about 60-70% if we use opioid with local anaesthetic agent intrathecally.⁽⁸⁾

Satisfaction about anesthetic procedure was more with spinal than general, this result was similar to a study where a 32 patients received general anaesthesia other 32 received spinal, one patient with spinal would prefer general in future while six of patients with general would prefer to have spinal in future.⁽¹⁹⁾ In this study there was one patient who asked to receive spinal from start because he had experienced it previously during his military service and he was satisfied, so good knowledge about spinal anaesthesia may affect its acceptance.

Total cost of spinal was less than general this may be due longer time to stay, more anti emetics, more analgesia post operatively, this result was similar to other studies,^(12, 25, 26, 27) while another other study found similar cost.⁽²⁸⁾

CONCLUSION:

Spinal anaesthesia is better choice than general for day case surgery if we use small dose lidocaine, post dural puncture headache transient neurological syndrome can be prevented and managed by simple precautions. General anaesthesia using new generation drugs (propofol, remifentanyl, isoflurane) may be also a good choice but usually more expensive.

More study needed to compare spinal anaesthesia using lidocaine in mini doses or in combination with opioids and compare it with general anaesthesia with new generations of drugs.

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