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ORIGINAL RESEARCH

Evaluation of Surgical Procedures in Selected Proctological Patients with Local Anaesthesia and Saddle Block and Comparison of Outcome of the Patients

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ABSTRACT

Introduction: Anorectal surgical procedures are among the most common surgical operations, with more than 90% of these procedures performed on an ambulatory basis. This study was designed to assess the two anaesthetic techniques, namely local anaesthesia with sedation and spinal anaesthesia, with respect to their recovery times, post-operative side effects, pain scores, patient satisfaction and hospital expenditures in certain proctological examinations that include ambulatory anorectal surgery.

Materials and Methodology: 80 patients who are considered fit at ASA physical status I, II and III outpatients scheduled for anorectal surgery were enrolled in this study. Patients were randomly allotted to receive one of the two following techniques: spinal anaesthesia (Group 1, n = 40) or local anaesthesia with midazolam sedation (Group 2, n = 40).

Results: There was no significant difference for preoperative VAS scores between the two groups ($p > 0.05$). VAS scores increased to 3.42 ± 0.5 for Group 1, and to 5.29 ± 1.6 for Group 2 at the fourth postoperative hour, which predicts a time-dependent increase of mean scores resulting from the early recurrence of pain. There was no statistically significant difference in VAS scores between two groups except for the four postoperative hour values.

Conclusion: To conclude that the use of local anaesthesia with sedation for ambulatory anorectal surgery, when compared with spinal anaesthesia, resulted in a relatively shorter hospital time, lower hospital expenditures and relatively no undesirable effects.

Keywords: Local Anaesthetic, Anorectal Surgery, Clinical Outcome

INTRODUCTION

There are many proctological findings that needs to be surgically intervened. An anal fissure is one among them which is a tear in the bowel lining which causes painful, bloody bowel movement. It is often be misdiagnosed with haemorrhoids, which are non-painful swellings at the anus caused by enlarged veins. A fissure could be acute or chronic. The chronic condition is often related with a build-up of tissue at the external end of the tear. Therapy is majorly focused on breaking the cycle of pain, spasm and ischemia that are responsible for the development of anal fissure. Medical therapy is an effective choice in most of the acute fissures but will eventually heal only 50 to 60% of chronic fissures on an average.[1] Surgical therapy has traditionally been recommended for chronic fissures that have already failed in medical therapy and lateral internal sphincterotomy (LIS) is the procedure of choice for most surgeons. Healing is achieved in more than 95% of patients with the use of this technique and most patients might experience immediate pain relief.[1]Moreover, nowadays there is a tendency to perform anorectal operations on an ambulatory basis.[2] Although organizing an ambulatory centre is greatly essential in selecting the patients with respect to main and concurrent diseases, selecting the optimal anaesthesia and early discharge is relatively significant. Few decades ago, anorectal surgery was regarded as one of the extremely painful conditions andthe intensive pain in the operated zone and functional disorder of adjacent organs are distinctive in the postoperative period,[4 5] but due to the advancements in the field of medicine, nowadays there is an attempt to enhance the patient's condition and reduce pain during the ambulatory procedure.

In the current cost-conscious environment, it is important to examine the impact of anaesthetic techniques on the recovery process after ambulatory surgery, because prolonged recovery times and perioperative complications might increase the cost of patient care. Additionally, patient satisfaction is greatly improved with a low incidence of postoperative side effects.[6] This study was designed to assess the two anaesthetic techniques, namelylocal anaesthesia with sedation and spinal anaesthesia, with respect to their recovery times, post-operative side effects, pain scores, patient satisfactionand hospital expenditures in certain proctological examinations that include ambulatory anorectal surgery.

MATERIALS AND METHODOLOGY

80 patientswho are considered fitat ASA physical status I, II and III outpatients scheduled for anorectal surgery were enrolled in this study. Patients were randomly allotted to receive one of the two following techniques: spinal anaesthesia (Group 1, n =40) and local anaesthesia with midazolam sedation (Group 2, n =40). Randomization was conducted using computer-generated random numbers which are kept in consecutively numbered, sealed envelopes. Patients who are reported with clinically significant cardiovascular, respiratory, renal, hepatic, or metabolic diseaseand history of allergic reactions observed with any local anaesthetic drug, were majorly excluded from the study.

In Group 1, patients who were received spinal anaesthesia using a standard midline approach in the sitting position. Bupivacaine of 1.5 mL 0.5% was injected through a 25-gauge pencil-point needle into the subarachnoid space at the L4-L5 interspaces. After the induction of spinal anaesthesia, patients were repositioned in the prone position. Sedation level was evaluated with Observer's Assessment of Alertness-Sedation (OAAS) score of about 7 and

titrated to an OAAS score of 3 to 4. Midazolam was titrated slowly to the desired effect. Doses were selected with a range of about 0.5 to 1 mg. Within a 5-minute period, not more than 2 mg was to be administered to patients.

In Group 2, patients were made to liein the prone position and then the local anaesthetic solution (50 mL) which consisted of 10 mL bupivacaine 0.5%, 10 mL lignocaine HCl 2%- and 30-mL isotonic solution with 1:200,000 epinephrine was administered through infiltration according to the earlier described technique.[7]

Data were analysed with the use of SPSS Version 10.0 software (SPSS Inc., Chicago, IL). Time-interval expenditure, age, heightand weight were analysed with the help of Student's t-test. Non-parametric data were analysed using the Mann-Whitney U test. Differences were considered to be significant when p value is less than 0.05. Values are expressed as means ± SE.

RESULTS

Eighty patients were made to be operated for anorectal disease. There were no statistically significant differences between groups in comparing the patient demographics as listed in table - 1. There was no reported anaesthetic failures or mortality in either group. The dose of midazolam given was 2.6 ± 0.5 mg in Group 2. Moreover, urinary retention was observed in two patients from Group 1, no difference was found in the frequency of side effects (nausea, vomiting, headache, backache, urine retention) between both the groups during the perioperative and postoperative period. It was necessary to catheterize the bladder before discharging a study patient from the hospital. All patients who were included in the study protocol were satisfied with the anaesthetic techniqueand no statistically significant difference was found between groups in the satisfaction scores ($p < 0.05$; Table 2).

Mean VAS scores are listed in table 3 for the two groups in pre-operative and post-operative values up to 7 days after the completion of procedure. There was no significant difference for preoperative VAS scores between the two groups ($p > 0.05$). VAS scores increased to 3.42 ± 0.5 for Group 1, and to 5.29 ± 1.6 for Group 2 at the fourth postoperative hour, which predicts a time-dependent increase of mean scores resulting from the early recurrence of pain. There was no statistically significant difference in VAS scores between two groups except for the four postoperative hour values as shown in table-2. Only one Group 2 patient needed pethidine HCl medication before the time of discharge. Although longer anaesthesia time was found in the spinal anaesthesia group, the surgery times were not different between groups. All Group 2 patients could possibly bypass the PACU (Post-anaesthesia care unit) and were fast-tracked directly to the SU (nurse to patient ratio is 1:7). Surgery unit time and total hospital time were significantly greater in Group 1 than Group 2. There was no reported evidence of recurrence nor impairment of daily activity was observed during that time. One patient in Group 1 and two patients in Group 2 had early wound disruption as a complicationwhich required no hospitalization except for daily wound care on an outpatient basisbut primary healing was equally achieved in all cases.

Table 1: Demographics and Patient Satisfaction Data

Parameters	Group – 1	Group – 2
Gender (M/F)	24/16	26/14
Age (years)	27.9 ± 2.7	29.2 ± 1.6
Height (cms)	169 ± 13	168 ± 11
Weight (kgs)	74 ± 21	72 ± 17
Satisfaction score	2.4 ± 0.9	2.7 ± 0.6

Table 2: Visual Analog Scale (VAS) Scores of Patients

Parameters	Group – 1	P – value	Group – 2	P – value
Pre-operative	1.29 ± 1.6		1.23 ± 1.9	
4 hrs	3.42 ± 0.5	< 0.05	5.29 ± 1.6	< 0.05
1st day	4.75 ± 1.4		5.42 ± 0.9	
2nd day	4.3 ± 2.6		4.84 ± 2.9	
3rd day	4.89 ± 1.8		4.78 ± 1.3	
4th day	4.29 ± 1.8		4.18 ± 2.3	
5th day	3.78 ± 1.3		3.69 ± 1.8	
6th day	3.57 ± 1.8		3.48 ± 1.4	
7th day	2.3 ± 0.8		2.4 ± 1.3	

Table 3: Anaesthesia, Surgery and Recovery Times

Parameters	Group – 1	Group – 2
Anaesthesia time (min)	64 ± 21	44 ± 14
Surgery time (min)	33 ± 18	28 ± 13
PACU time (min)	46 ± 21	0 ±0
Surgery time (min)	170 ± 98	69 ± 22
Total hospital time (min)	291 ± 89	121 ± 25

DISCUSSION

The preferred choice of an anaesthetic technique majorly depending uponboth the surgical and patient factors for ambulatory surgery. Local anaesthesia-based techniques equally fulfil all the requirements for the ideal ambulatory anaesthetic technique. The simplest and the safest technique were considered to be local infiltration at the operative site with dilution of local anaesthetics.[8] Local infiltration anaesthesia, spinal anaesthesia and general anaesthesia are the most commonly used anaesthetic techniques for anorectal surgery. Therefore, the best anaesthetic technique for ambulatory anorectal surgery remains unknown and unexploratory.[9-11]

In the early 1950s, Schneider[12]demonstrated a modified local anaesthetic infiltration technique that has subsequently gained widespread acceptance for the anorectal surgery.[7]Nowadays, the availability of theenhanced sedation techniques to support the local anaesthetic infiltration has increased the popularity of surgery that were performed with monitored anaesthesia care.[8] This study showed that the use of a local anaesthesia with midazolam sedation for anorectal surgery reveals significant advantages over the bupivacaine

spinal anaesthesia. Patients included in the local anaesthesia-sedation group had a relatively shorter time to discharge and had no undesiredeffects. A major goal of ambulatory anaesthesia is to provide early discharge without any reported side effects.

The popularity of spinal anaesthesia for ambulatory surgery has been greatly masked by the concerns regarding transient radicular irritation, urinary retention and post-dural puncture headache.[13,14] The use of spinal anaesthesiamight lead to the development of transient neurologic symptoms (TNS), especially when short-acting anaesthetics (e.g., lidocaine) are administered.[15,16] Bupivacaine has been the most studied alternative to lidocaine. TNS is reported to be absent in all the clinical studies with spinal bupivacaine (0% to 1%).[16] In ambulatory surgery, bupivacaine might delay the recovery of motor function and eventually cause urinary retention which might lead to delayed discharge. Recent dose-response data for spinal bupivacaine indicate that small doses can be used for ambulatory anaesthesia.[17] It is particularly notable to select small doses of bupivacaine (<10 mg), rather than with equipotent doses of lidocaine,[18]so as to avoid prolonged detrusor block, the inability to voidand excessively prolonged time until the time of discharge. Patients were considered "ready to send home" based on the institutional discharge criteriawhich included their ability to urinate and to ambulate early.[19] In this study, urinary retention was reported in two patients in the spinal anaesthesia group such that bladder catheterization was equally necessary before discharge from the hospital. Li et al[20]researched general, regional and local anaesthesia in anorectal surgery. Our study greatly differs from theirs in that we used bupivacaine instead of lidocaine for spinal anaesthesia. In comparison to the study conducted by Li et al[20], the total hospital time reported in our study (291 ± 89 min) for spinal bupivacaine anaesthesia was found to be longer than their total hospital time (266 ± 112 min), whereas the PACU times in both studies were reported to be the same without difference. Data revealed that the total hospital time with spinal 7.5 mg bupivacaine was a little longer than with 30 mg lidocainebut in considering the undesirable effects of lidocaine, bupivacaine might be preferable instead. In agreement with the Li et al[20] study, our study has demonstrated that the spinal anaesthesia patients need more nursing time in the OR. The longer anaesthesia times for the spinal anaesthesia group is associated partially to the time required to conduct the procedureand the fluid loading, as well as the additional time required after completing the procedure.

CONCLUSION

To conclude that the use of local anaesthesia with sedation for ambulatory anorectal surgery, when compared with spinal anaesthesia, resulted in a relatively shorter hospital time, lower hospital expenditures and relatively no undesirable effects.

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