

ADVERSE EVENTS AFTER LOCAL ANESTHESIA IN A DAY CARE ORTHOPEDIC SURGERY

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ABSTRACT

Background: Each type of anesthesia has its own complication but the day care surgery under local anesthesia has minimized most of them. Different types of local anesthesia can be used in day care surgery. This study was conducted to determine the frequency of adverse events after local anesthesia.

Material & Methods: This descriptive study was conducted on 48 consecutive patients who underwent day care surgery under local anesthesia in Orthopedic Department of Hayatabad Medical Complex Peshawar from 2006 to 2008. Bupivacaine Hydrochloride was used as a local anesthetic. After two hours of surgery, patients were assessed by surgeon and subsequently discharged home (score of 9 or more) using post anesthetic discharge scoring system (PADSS) after taking notes on postoperative nausea and vomiting, post operative pain, difficulty in movements and resumption of normal diet.

Results: Out of 48 patients 20 were female and 28 were male. Average age was 23 years. The procedure performed were 7(14.58%) knee arthroscopy, 10(20.83%) excisional release of trigger finger, 9(18.75%) release of carpal tunnel, 19(39.58%) removal of foreign body and 3(6.25%) excision biopsies. Postoperative nausea and vomiting was noted in 3(6.25%) patients, post operative pain requiring parenteral analgesics in 12(25%), difficulty in movements in 7(14.58%) and not resuming normal diet in 2(4.16%) patients.

Conclusion: Although local anesthesia was associated with minor adverse events, however the patients could resume normal diet and daily activities quickly.

Key words: Local anesthesia, Bupivacaine, Adverse effects, Day care surgery.

INTRODUCTION

Medical sciences grow day by day. In the last two decades, a number of new anesthetics have been developed. Due to these developments, the range of techniques and surgical procedures which can be performed on an ambulatory or day-care basis has increased.¹ Ambulatory surgery patients are usually patients in their prime working age, and they expect a rapid recovery and high postoperative satisfaction with low postoperative complications.² A variety of technological developments (e.g. endoscopic procedures) have allowed surgeons to respond to these new expectations by simplifying surgical procedures^{1,2}

Depending on the nature of surgical procedure, a patient returns to the work in a day to a week time.⁴ The emotional maturity and stability of the patient is an important consideration when deciding whether the procedure should be performed under local or general anesthesia. Preventing complications in the local anesthesia as a day care surgery is of paramount importance and can

be directly controlled by the surgeon and his team.^{5,6}

Each type of anesthesia has its own complication but the day care surgery under local anesthesia has minimized most of them. Different types of local anesthesia can be used in day care arthroscopy like lidocaine or bupivacaine but the last one is most widely used due to its long duration of action.⁷ Bupivacaine Hydrochloride can cause allergy and adverse effects on central nervous system and cardiovascular system. The common adverse effects are tachycardia, sneezing, nausea, vomiting, dizziness, syncope, excessive sweating, elevated temperature, hypotension, apnea, excitation and/or depression.⁷ Apart from the adverse effects of local anesthesia, surgery itself has some adverse events like postoperative pain and difficulty in movements.⁸

The objective of this study was to find the frequency of adverse events like postoperative nausea and vomiting (PONV), postoperative pain, difficulty in movement and not resuming normal diet after local anesthesia.

MATERIAL AND METHODS

A total of 48 consecutive patients underwent day care surgery under local anaesthesia in Orthopaedic Department of Postgraduate Medical Institute Hayatabad Medical Complex Peshawar from December 2006 to September 2008. Those patients who were willing to take part were included in this descriptive study.

The procedures done as a day care surgery under local anaesthesia are release of trigger finger, removal of foreign bodies, release of carpal tunnel, knee arthroscopy and excision biopsy.

An intravenous cannula was inserted in the operating theatre and then the patient was scrubbed and draped.

Knee Arthroscopy: After preparation with povidone iodine each point of entry was infiltrated widely using 5 ml Bupivacaine 1.5%, from skin to synovium. A needle was introduced into the joint and any effusion aspirated. Through this needle 30 ml of Bupivacaine was then injected into the joint. The knee was flexed and extended several times to allow the anaesthesia to take effect. The patient was observed, and the pulse and blood pressure were monitored. The arthroscopy was carried out using the standard technique without tourniquet. After the procedure the portals were closed by stitches and covered with dressings and a bandage.

Other procedures: The skin was infiltrated locally using 5 ml Bupivacaine 1.5% circularly around the operation area. Depending on the depth of incision to deep tissue, Bupivacaine was also infiltrated deeply. Care was taken to avoid injection into a vessel by withdrawing the plunger of the syringe once the needle is in the tissues.

After the surgery, patients were closely monitored in the post-anesthetic care room where pulse oximetry, electrocardiography, and non-invasive blood pressure monitoring were applied. If the patient conditions were stable, they were discharged to the waiting area. Then the patients were encouraged to resume feeding and were mobilized under observation. After two hours of surgery, patients were assessed by surgeon and subsequently discharged home after taking notes on postoperative nausea and vomiting, post operative pain requiring parenteral analgesics, difficulty in movements. Then they interviewed on first follow up for the above adverse event and resumption of normal diet.

We used post anesthetic discharge scoring system (PADSS)⁹ after surgery at two hours. PADSS is based on five major criteria: (1) vital signs, including blood pressure, heart rate, respiratory rate

and temperature; (2) ambulation and mental status; (3) pain, nausea /vomiting; (4) surgical bleeding; and (5) fluid intake /output. (Table-1)

The qualifications for discharge include a postoperative discharge score of 9 or more and the presence of a competent attendant to accompany the patient home. Postoperative instructions for diet, movements and how to care for the wound were given. Pain medications were prescribed for a short period.

Then the data regarding age, gender, and complications; PONV, postoperative pain, difficulty in movement and not resuming normal diet, were collected and analyzed with the help of SPSS version 10.

Table-1: Post Anaesthetic Discharge Scoring System (PADSS).⁹

Variables	Score
1. Vital signs	
Within 20% of preoperative value	2
20–40% of preoperative value	1
40% of preoperative value	0
2. Ambulation and mental status	
Oriented and has a steady gait	2
Oriented or has a steady gait	1
Neither	0
3. Pain or nausea/vomiting	
Minimal	2
Moderate	1
Severe	0
4. Surgical bleeding	
Minimal	2
Moderate	1
Severe	0
5. Intake and output	
Has had PO fluids and voided	2
Has had PO fluids	1
Neither	0
Total	15

RESULTS

Forty-eight patients were operated under local anesthesia. Twenty patients were females and 28 were males. Average age was 23 years. The procedure performed were 7 (14.58%) knee arthroscopy, 10 (20.83%) release of trigger finger, 9 (18.75%) release of carpal tunnel, 19 (39.58%) removal of foreign body and 3 (6.25%) excisional biopsies. (Table-2)

Post-operative nausea and vomiting (PONV) was noted in 3 (6.25%) of patients, post operative pain requiring parenteral analgesics in 12 (25%), difficulty in movements in 7 (14.58%) and not resuming normal diet in 2 (4.16%) patients. (Table-3)

PADSS score was above 10 in all patients. Thirty patients had 14, ten patients had 13, four patients had 12 and four patients had 11 score.

Table-2: Procedures done as a day care surgery under local anesthesia. (n=48)

Procedures	Number	Percent
Knee arthroscopy	7	14.58
Release of trigger finger	10	20.83
Release of carpal tunnel	9	18.75
Removal of foreign body	19	39.58
Excision biopsy	3	6.25

Table-3: Adverse events after local anesthesia in day care surgery. (n=48)

Adverse events	No	Percent
Postoperative Nausea and vomiting	3	6.25
Post operative pain requiring parenteral analgesics	12	25
Difficulty in movements	7	14.58
Not resumed normal diet	2	4.16

DISCUSSION

In the United States over 60% of all elective operative procedures are performed as a day care surgery and half of them are done under local anesthesia. With the recent growth in major laparoscopic and office-based surgery, this percentage may increase even more in the future.¹⁰ When surgery is performed outside the conven-

tional hospital environment, it can offer a number of advantages for patients, healthcare providers, and even to the hospital.¹¹ However it is not free of complications. In our study we observed twenty four complications in forty-eight patient in which postoperative pain was the most common. Matilla et al¹² in their study has also shown that the post-operative pain is the most common adverse event in day care surgery. The frequency of pain was (34%) and postoperative nausea and vomiting was (30%) in Matilla et al¹² while pain in our study was (25%) and PONV was (6.25%). Post-operative pain was observed in (23.7%) patient in a study by Ahmad et al¹³ which is almost equal to our study but PONV was almost double (6.25%) as compared to Shalom A et al¹⁴ which was (3.2%). Shnaider et al¹⁵ had also noted postoperative pain in 30% of patient in day care surgery.

Another study done by Lai et al¹¹ in Hong Kong had observed PONV in 3.3% patients, post operative pain in 60.2%, difficulty in movement in 3.9% and 2.5% of patients had not resumed normal diet on the same day while in our study it was 4.16% patients that had not resumed normal diet. The frequency of pain was high for knee arthroscopic surgery which was 13.5% in Lai et al¹¹ study while it was 14.58% in our study (all patients with knee arthroscopy experienced post operative pain).

CONCLUSION

Minor adverse events are not uncommon after day care surgery with local anesthesia but these are not incapacitating and are well-tolerated. Local anesthesia can offer a number of advantages for patients, healthcare providers and even hospitals. Patients are benefited because it minimizes costs, decreases separation from home and family, reduces surgery waiting times, decreases likelihood of contracting hospital acquired infections and has less postoperative complications.

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