

ORIGINAL ARTICLE

Morphine and fentanyl for postoperative analgesia after ambulatory surgical procedures

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ABSTRACT:

Aim: To compare morphine and fentanyl for postoperative analgesia after ambulatory surgical procedures. **Methodology:** Seventy patients undergoing ambulatory surgery of both genders were divided into 2 groups of 35 each. Group I patients received 1 mg/ml morphine and group II patients received 1.5 µg/kg IV fentanyl. **Results:** Group I had 20 males and 15 females and group II had 17 males and 18 females. The mean age in group I was 35.6 years and in group II was 39.2 years, weight was 70.5 kgs in group I and 79.4 kgs in group II. Anesthetic duration was 52.2 minutes in group I and 69.7 minutes in group II. The difference was significant ($P < 0.05$). Operation performed was arthroscopy in 15 in group I and 10 in group II, elbow surgery was performed in 9 in group I and 8 in group II and shoulder surgery in 11 in group I and 17 in group II. The difference was significant ($P < 0.05$). The mean VAS at 10 minutes was 75.2 in group I and 68.7 in group II, at 20 minutes was 56.4 in group I and 51.4 in group II, at 30 minutes was 40.6 in group I and 48.2 in group II, at 40 minutes was 28.7 in group I and 37.4 in group II, at 50 minutes was 16.2 in group I and 28.6 in group II and at 60 minutes was 12.4 in group I and 22.4 in group II. The difference was significant ($P < 0.05$).

Conclusion: Morphine produced a better quality of post-operative analgesia as compared to fentanyl.

Key words: Ambulatory surgery, Fentanyl, Morphine

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INTRODUCTION

Adequate postoperative analgesia without side effects is necessary to facilitate same-day discharge of ambulatory patients after ambulatory surgery. After ambulatory surgery, persistent, intractable pain is one of the most common surgical complications. Adequate analgesia is necessary to facilitate same-day discharge of ambulatory patients whereas inadequate analgesia may delay or prevent discharge.¹ Recently, the range of procedures undertaken on an ambulatory basis has increased. More complex and painful procedures are being performed, which means the choice of analgesia is of greater significance in facilitating discharge.²

Adequate pain relief is a key factor in reducing the morbidity and improving the overall patient satisfaction. In numerous studies, intra-articular local anaesthetic agents have been used either alone or in combination with other agent however, it was observed that use of combination of drug is better than single drug for prevention of postoperative pain. Though, the combination of drugs provides synergistic effect and reduces the side effect compared to high dose of single drug still the best combination is not known.

Morphine and fentanyl are widely used in ambulatory patients to provide analgesia during Phase I recovery in the post anesthesia care unit.⁵ As fentanyl has a

faster onset time, its use may provide more rapid control of pain and avoid unnecessary extra doses which may be administered when a drug of slower onset is used in small incremental doses titrated to pain.⁶ Considering this, the present study was conducted to compare morphine versus fentanyl for postoperative analgesia after ambulatory surgical procedures.

METHODOLOGY

A sum total of seventy patients of ASA physical status I and II age ranged 18- 50 years of age undergoing ambulatory surgery of either gender was recruited. All were informed regarding the study and their written consent was obtained. Ethical clearance was obtained from ethical review committee.

Demographic profile of patients such as name, age, gender etc. was recorded. All were divided into 2 groups. Each group had 35 patients. Group I patients received 1 mg/ml morphine and group II patients received 1.5 µg/kg IV fentanyl. The drugs were administered in equipotent doses in the post anesthesia care unit (PACU) and were titrated against pain scores until a visual analog score. Type of operation performed was also recorded. The results of the study were compiled and subjected for statistical

analysis using Mann Whitney U test. P value less than 0.05 was set significant.

RESULTS

Table I: Distribution of patients

Groups	Group I	Group II
Drug	1 mg/ml morphine	1.5 µg/kg IV fentanyl
Male	20	17
Female	15	18

Group I had 20 males and 15 females and group II had 17 males and 18 females (Table I).

Table II: Comparison of parameters

Groups	Group I	Group II	P value
Age (years)	35.6	39.2	0.92
Weight (Kgs)	70.5	79.4	0.05
Anesthetic duration (min)	59.2	69.7	0.04

The mean age in group I was 35.6 years and in group II was 39.2 years, weight was 70.5 kgs in group I and 79.4kgs in group II. Anesthetic duration was 52.2 minutes in group I and 69.7 minutes in group II. The difference was significant (P< 0.05) (Table II).

Table III: Type of operations performed

Operation	Group I	Group II	P value
Arthroscopy	15	10	0.05
Elbow	9	8	0.94
Shoulder	11	17	0.05

Operation performed was arthroscopy in 15 in group I and 10 in group II, elbow surgery was performed in 9 in group I and 8 in group II and shoulder surgery in 11 in group I and 17 in group II. The difference was significant (P< 0.05) (Table III).

Table IV: Comparison of VAS in both groups

Duration (minutes)	Group I	Group II	P value
10	75.2	68.7	0.92
20	56.4	51.4	0.81
30	40.6	48.2	0.74
40	28.7	37.4	0.05
50	16.2	28.6	0.02
60	12.4	22.4	0.03

The mean VAS at 10 minutes was 75.2 in group I and 68.7 in group II, at 20 minutes was 56.4 in group I and 51.4 in group II, at 30minutes was 40.6 in group I and 48.2 in group II, at 40 minutes was 28.7 in group I and 37.4 in group II, at 50 minutes was 16.2 in group I and 28.6 in group II and at 60 minutes was 12.4 in group I and 22.4 in group II. The difference was significant (P< 0.05) (Table IV).

Table V: Comparison of side effects

Side effects	Group I	Group II	P value
Nausea/vomiting	17	12	0.05
Drowsiness	12	8	0.04
Dizziness	6	3	0.02

Side effects were nausea/vomiting seen in 17 in group I and 12 in group II, drowsiness 12 in group I and 8 in group II and dizziness 6 in group I and 3 in group II. The difference was significant (P< 0.05) (Table V).

DISCUSSION

Lower abdominal pain may depend on the extent of intra peritoneal manipulation during diagnostic laparoscopy. Sterilization operations cause ischemia or damage to the fallopian tubes and are generally more painful than simple diagnostic procedures, with clips generally causing less pain than other techniques

to occlude the tubes.³ Upper abdominal, shoulder tip, and postural high back pain after laparoscopy are likely to be caused by gas retained in the peritoneal cavity. Carbon dioxide is usually used to expand the abdomen to allow surgical visualization. Although it is a soluble gas in comparison to oxygen and nitrogen, it can take up to two days to be absorbed from the peritoneal cavity. Pain from the residual gas is of delayed onset and may present once the patient has gone home.⁴Pain in the immediate postoperative period often requires opiates. Alternatives, such as non-steroidal anti-inflammatory drugs or local

anesthetic techniques, may be used, but these are not always possible for every patient or procedure.⁷ Opiates will therefore continue to be an important part of the armamentarium available to provide rapid control of severe postoperative pain.⁸ The present study was conducted to compare morphine versus fentanyl for postoperative analgesia after ambulatory surgical procedures.

Our results showed that Group I had 20 males and 15 females and group II had 17 males and 18 females. Pandit et al compared fentanyl and butorphanol, an opiate with a duration of action similar to morphine, as a supplement to balanced anesthesia in outpatients. In the fentanyl group, there was a higher incidence of severe postoperative pain and the need for more analgesia. The incidence of nausea and vomiting was similar in both groups.

The mean age in group I was 35.6 years and in group II was 39.2 years, weight was 70.5 kgs in group I and 79.4 kgs in group II. Anesthetic duration was 52.2 minutes in group I and 69.7 minutes in group II. Operation performed was arthroscopy in 15 in group I and 10 in group II, elbow surgery was performed in 9 in group I and 8 in group II and shoulder surgery in 11 in group I and 17 in group II. Claxton et al¹⁰ included fifty-eight patients undergoing ambulatory surgery who received morphine or fentanyl for postoperative analgesia. In addition, the fentanyl group required more oral analgesia than the morphine group (69% vs 17%; $P < 0.0002$). The incidence of in-hospital side effects was similar. However, the morphine group had a more frequent incidence of post discharge nausea and vomiting than the fentanyl group (59% vs 24%; $P < 0.016$). There was no significant difference in the duration of stay in the PACU (morphine vs fentanyl, 69 +/- 15 min vs 71 +/- 20 min), the times to achieve recovery milestones, and fitness for discharge (morphine vs fentanyl, 136 +/- 41 min vs 132 +/- 40 min). The short duration of fentanyl was not associated with faster discharge times; most patients required additional analgesia to control pain.

The mean VAS at 10 minutes was 75.2 in group I and 68.7 in group II, at 20 minutes was 56.4 in group I and 51.4 in group II, at 30 minutes was 40.6 in group I and 48.2 in group II, at 40 minutes was 28.7 in group I and 37.4 in group II, at 50 minutes was 16.2 in group I and 28.6 in group II and at 60 minutes was 12.4 in group I and 22.4 in group II. Vahedi et al enrolled 307 patients with acute traumatic limb injuries (ATLI) who were randomly divided into two groups. One group (152 patients) received 0.1 mg/kg IV morphine. The other group (155 patients) received 1 mcg/kg IV fentanyl. Pain score in the fentanyl group had a significant decrease at 5-minute follow-up. However, at 10, 30, and 60-minute follow-ups no significant differences were observed between the two groups in terms of pain score reduction. The rescue analgesia was required in 12 (7.7%) patients in the fentanyl group and in 48 (31.6%) patients in the morphine group. No significant difference was observed

regarding side effects, vital signs and patients' satisfaction between the two groups. Fentanyl might be an effective and safe drug in opioid addicts suffering from ATLI.

CONCLUSION

Morphine produced a better quality of post operative analgesia as compared to fentanyl.

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