

# Comparison of the Effects of Single Intravenous Infusion of Alfentanil or Sufentanil Combined with Target-Controlled Infusion (TCI) of Propofol for Daytime Hysteroscopy

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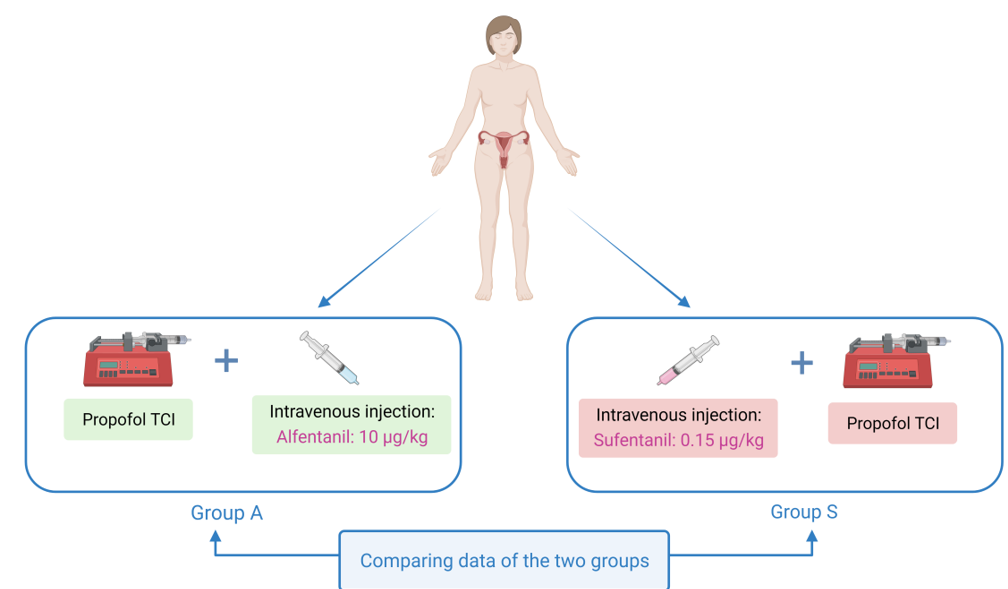
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## Introduction

- The administration of either alfentanil or sufentanil as a single injection, combined with target-controlled infusion (TCI) of propofol, represents a frequently employed anesthetic regimen for daytime hysteroscopy.
- While opioids are associated with adverse effects, including coughing, respiratory depression, postoperative nausea and vomiting (PONV), hemodynamic instability, and an overall elevation of potential for adverse reactions.
- This study was designed to evaluate and compare the safety and efficacy of alfentanil and sufentanil in the context of daytime hysteroscopy.

## Methods

➤ A total of 152 patients, scheduled for daytime hysteroscopy, were randomly allocated into two groups: Group A and Group S respectively received alfentanil 10 µg/kg or sufentanil 0.15 µg/kg as a single intravenous injection. Both groups were given propofol with TCI for sedation. Comprehensive data encompassed the occurrence of complications and perioperative vital signs.



## Results

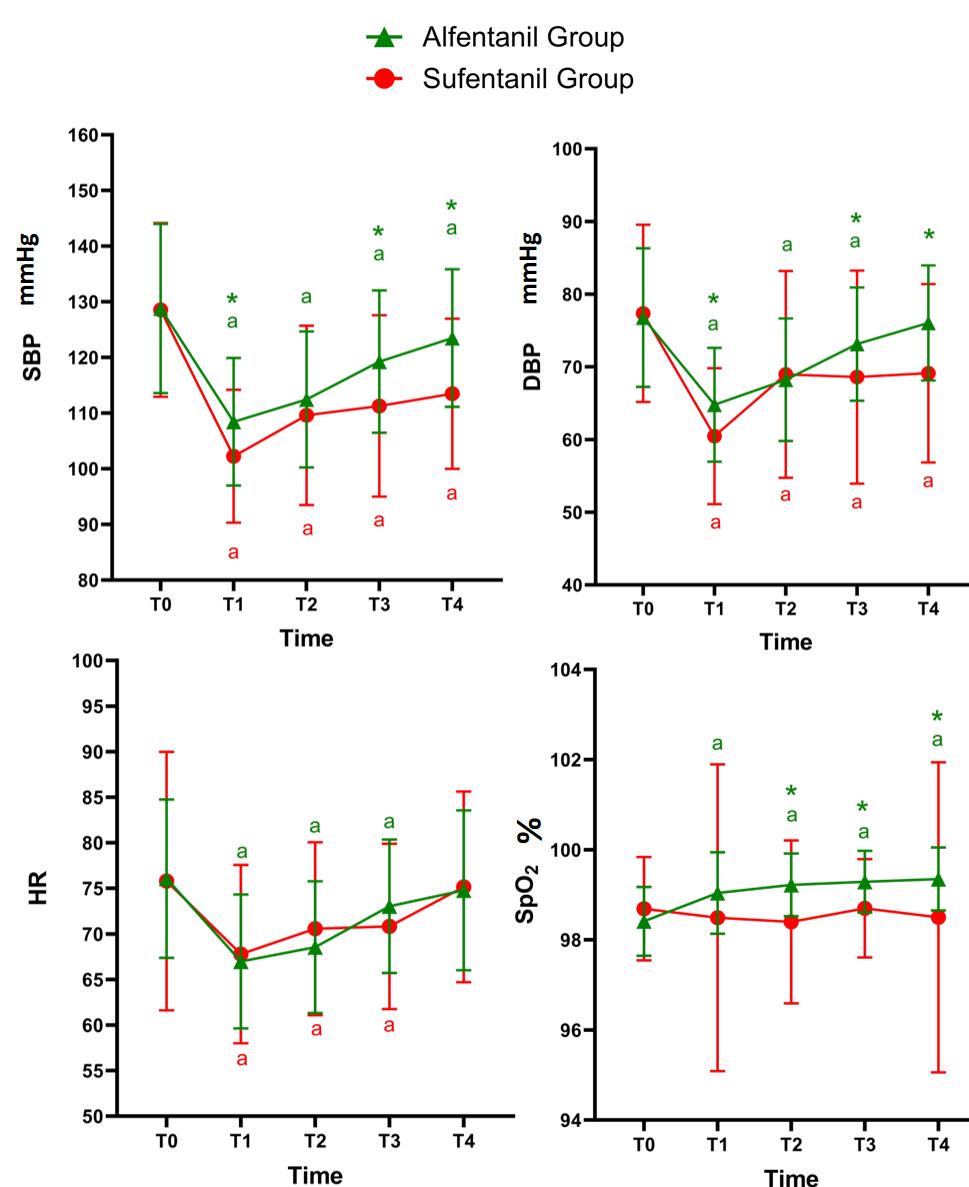
Table 1

### Demographics and baseline values

	Group A (n=78)	Group S (n=74)
Age, y	42.4 ± 10.8	40.7 ± 10.9
Weight, kg	58.8 ± 10.4	56.6 ± 8.9
Height, cm	157.1 ± 4.7	157.3 ± 6.1
ASA ( I / II )	68/10	60/14
Diagnosis		
Endometrial polyps	45 (57.7%)	48 (64.9%)
Intrauterine adhesion	13 (16.7%)	12 (16.2%)
Uterine malformation	2 (2.6%)	2 (2.7%)
Submucous myoma	2 (2.6%)	1 (1.4%)
Contraceptive ring incarceration	4 (5.1%)	0 (0%)
Abnormal uterine bleeding	12 (11.8%)	11 (14.9%)

There were no significant differences between the groups with regard to age, weight, height, ASA Physical Status classification, or diagnosis.

Figure 1 Hemodynamic changes



a Significant differences T0 vs. other time points

\* Significant differences between two groups

T0 (prior to anesthesia induction);  
T1 (at the commencement of surgery);  
T2 (5 min after surgery started);  
T3 (at the commencement of surgery),  
T4 (in PACU)

Table 2

### Anesthetic data and adverse outcomes

The analyses revealed that Group A had a significantly lower incidence of hypoxemia and PONV.

	Group A (n=78)	Group S (n=74)
Total Propofol Dosage, mg	211.9 ± 65.3	229.1 ± 81.9
Awakening, min	6.1 ± 1.4	5.7 ± 1.9
Duration of surgery, min	13.3 ± 5.4	13.9 ± 7.1
Satisfaction Evaluation of Patients, score	9.1 ± 1.2	8.9 ± 1.4
NRS for pain in PACU, score	7 ± 0.7	2.5 ± 0.8
NRS for pain 2 hours after surgery, score	1.5 ± 0.6	1.5 ± 0.6
Intraoperative Body Movement	11 (14.1%)	9 (12.2%)
Bradycardia	10 (12.8%)	5 (6.8%)
Hypotension	7 (9.0%)	12 (16.2%)
<b>Hypoxemia</b>	<b>3 (3.8%)</b>	<b>15 (20.3%)*</b>
Additional Analgesia	8 (10.3%)	5 (6.8%)
<b>PONV ( I / II / III / IV )</b>	<b>7/3/2/0</b>	<b>60/9/4/1 *</b>
Dizziness	3 (3.8%)	4 (5.4%)
Pruritus	0 (0%)	1 (1.35%)
elirium	0 (0%)	0 (0%)

\* Significant differences between two groups

## Discussion

- Opioid-induced respiratory depression has been associated with prolonged hospital stays, increased the rate of readmissions, involved higher costs and even catastrophic outcomes. Our study found that alfentanil had a lesser detrimental effect on hemodynamics and better oxygen saturation.
- Severe PONV can be so debilitating that patients have rated it as a more serious concern than postoperative pain. To reduce PONV, we employed the TIVA technique in our study as propofol possesses antiemetic effects. Both alfentanil and propofol are rapidly metabolized drugs with similar half-life of fast distribution ( $T_{1/2\alpha}$ ). Sufentanil has a longer  $T_{1/2\alpha}$ . The differences in the pharmacokinetics of these two drugs may be responsible for the variation in PONV incidence, warranting further investigation.

## References:

1. J.V.L. Enno Freye, Opioids in medicine: a comprehensive review on the mode of action and the use of analgesics in different clinical pain states, Springer.
2. S. Kampo, et al, Sub-hypnotic dose of propofol as antiemetic prophylaxis attenuates intrathecal morphine-induced postoperative nausea and vomiting, and pruritus in parturient undergoing cesarean section - a randomized control trial, BMC Anesthesiol.

