

INTRODUCTION

Remifentanil is an ultra-short-acting opioid used as an intravenous patient-controlled analgesia (PCA) option for labour. It is associated with lower pain scores and reduced conversion to epidural analgesia compared with pethidine¹. However, evidence regarding the safety profile of remifentanil PCA remains mixed, and data specific to patients living with obesity are limited.

A recent study found remifentanil PCA to be neither less safe nor associated with poorer outcomes compared with other analgesic options². While serious adverse events are uncommon, reported complications include apnoea, respiratory depression, bradycardia, and cardiac arrest.

We aimed to evaluate the safety of remifentanil PCA in labour, with particular focus on the incidence of respiratory complications and the association with increasing body mass index.

METHODS

Following local REC approval, a retrospective review was conducted on patients who used remifentanil PCA for labour analgesia.

Data from introduced electronic patient controlled analgesia (PCA) system was reviewed from January 2017 to December 2025.

Parameters recorded included booking BMI, OSA, smoking status as well as lowest recorded oxygen saturations, lowest recorded respiratory rate, oxygen flow rate increases, anaesthetic interventions and whether the PCA was discontinued due to an adverse event.

Percentage of patients with anaesthetic interventions

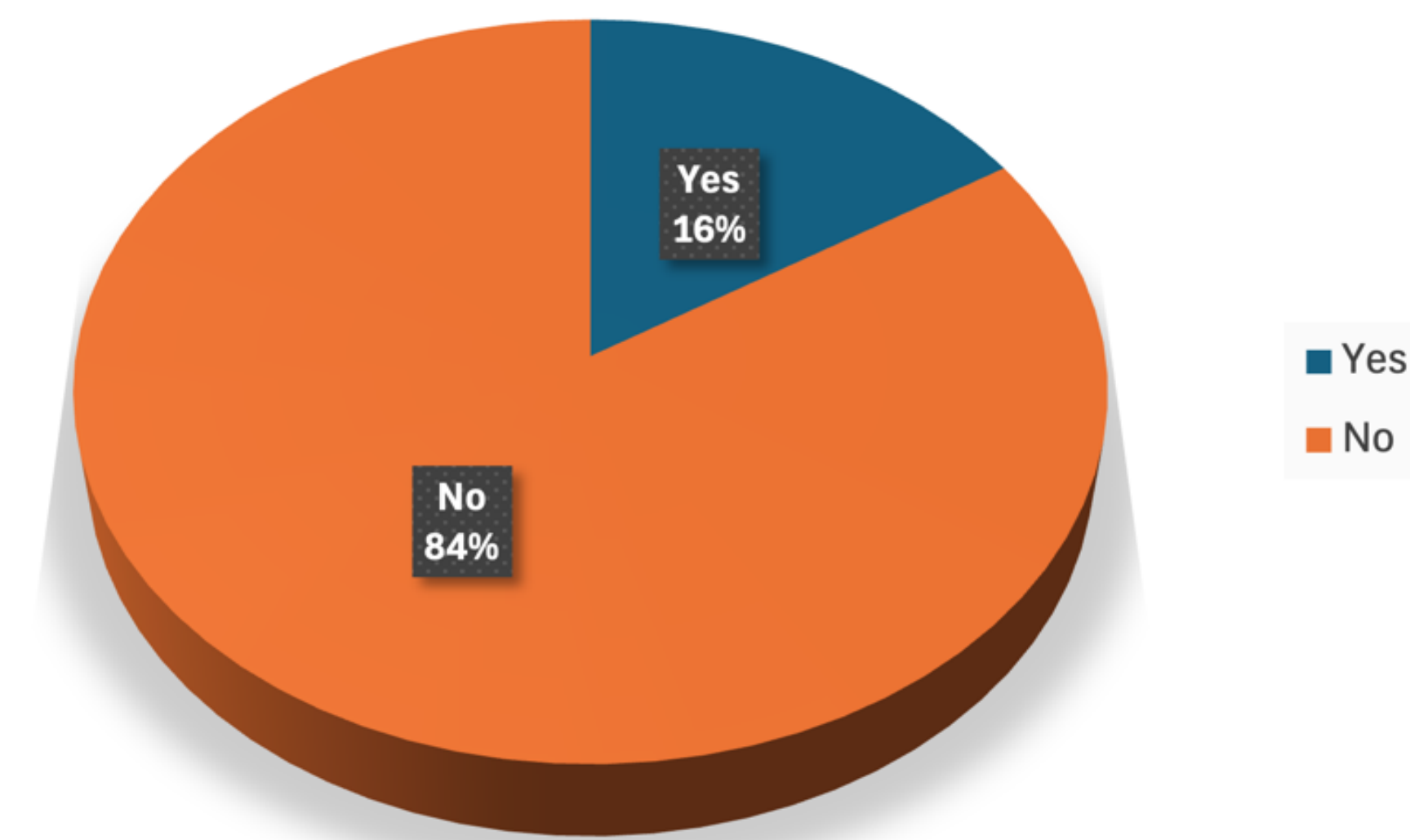
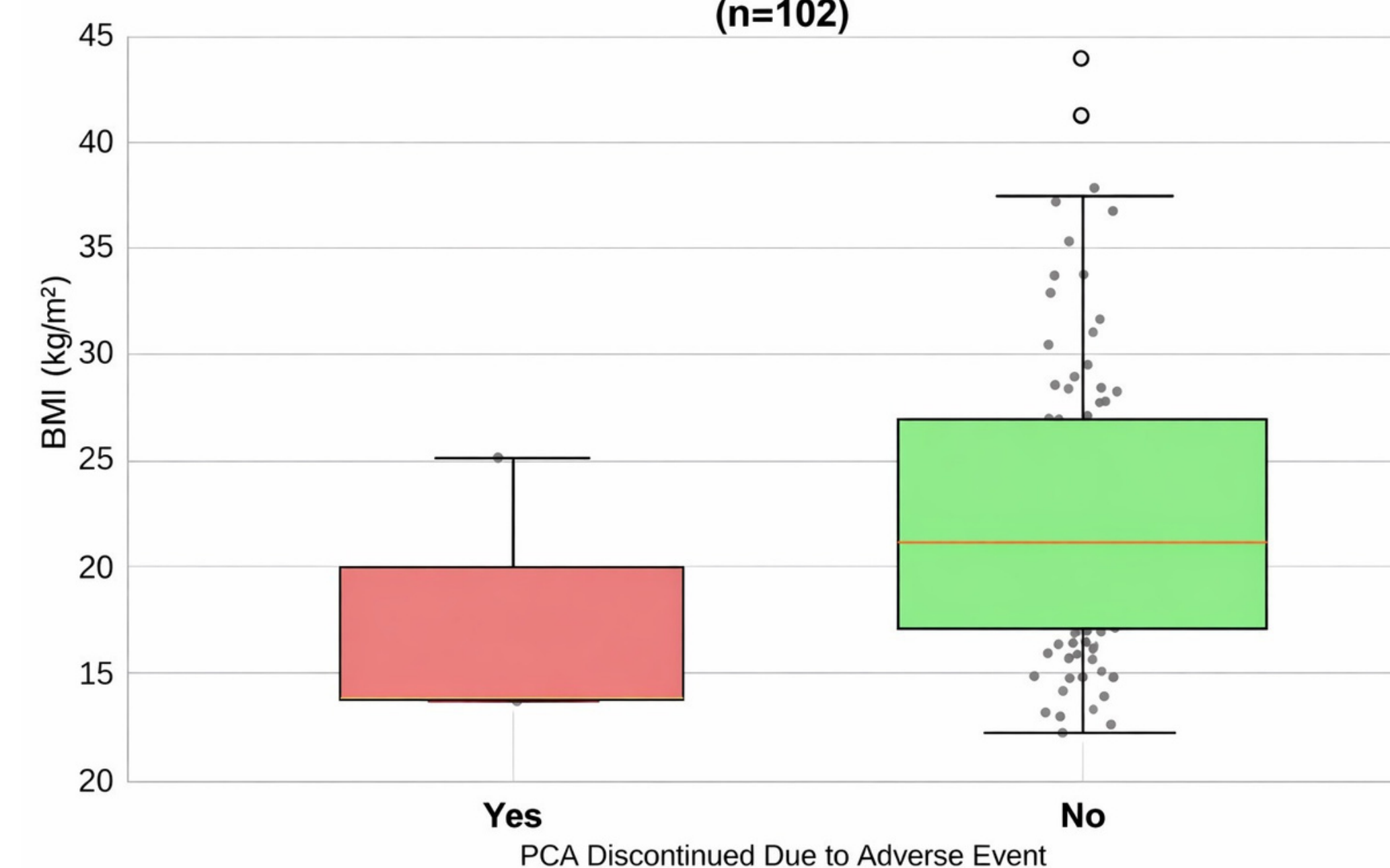


Figure 1

BMI Distribution by PCA Discontinuation (n=102)



No significant difference was found in anaesthetic interventions between BMI groups ($p = 0.475$) ($r = -0.11$) and No significant association was found between PCA discontinuation and BMI distribution ($\chi^2 = 0.185$, $p = 0.396$).

RESULTS

- Of the 110 patients, booking BMI was recorded for 103.
- 41 patients (39.8%) had a normal BMI (18-25) and 32 (31%) were overweight (BMI 25.1-29.9) and 30 (29.1%) were obese (BMI >30). One patient had a documented diagnosis of OSA and 14 were smokers.
- Anaesthetic intervention was required in 17 patients (figure 1); 6 in patient with normal BMI and 11 in patients with BMI >25 ($p = 0.487$).
- The most common intervention across all patients was increasing oxygen flow rate ($n = 14$).
- The PCA was discontinued in only 3.8% ($n = 4$) due to an adverse event such as excessive sedation, two of these patients were obese. No major adverse event was recorded.

BMI Group	N	O ₂ Flow	PCA Discontinued
Normal (BMI <25)	6	33.3% (2/6)	16.7% (1/6)
Overweight (25- 29.9)	4	75.0% (3/4)	0.0% (0/4)
Obese (≥ 30)	7	57.1% (4/7)	28.6% (2/7)

O2 flow rate increase by BMI group
Figure 2

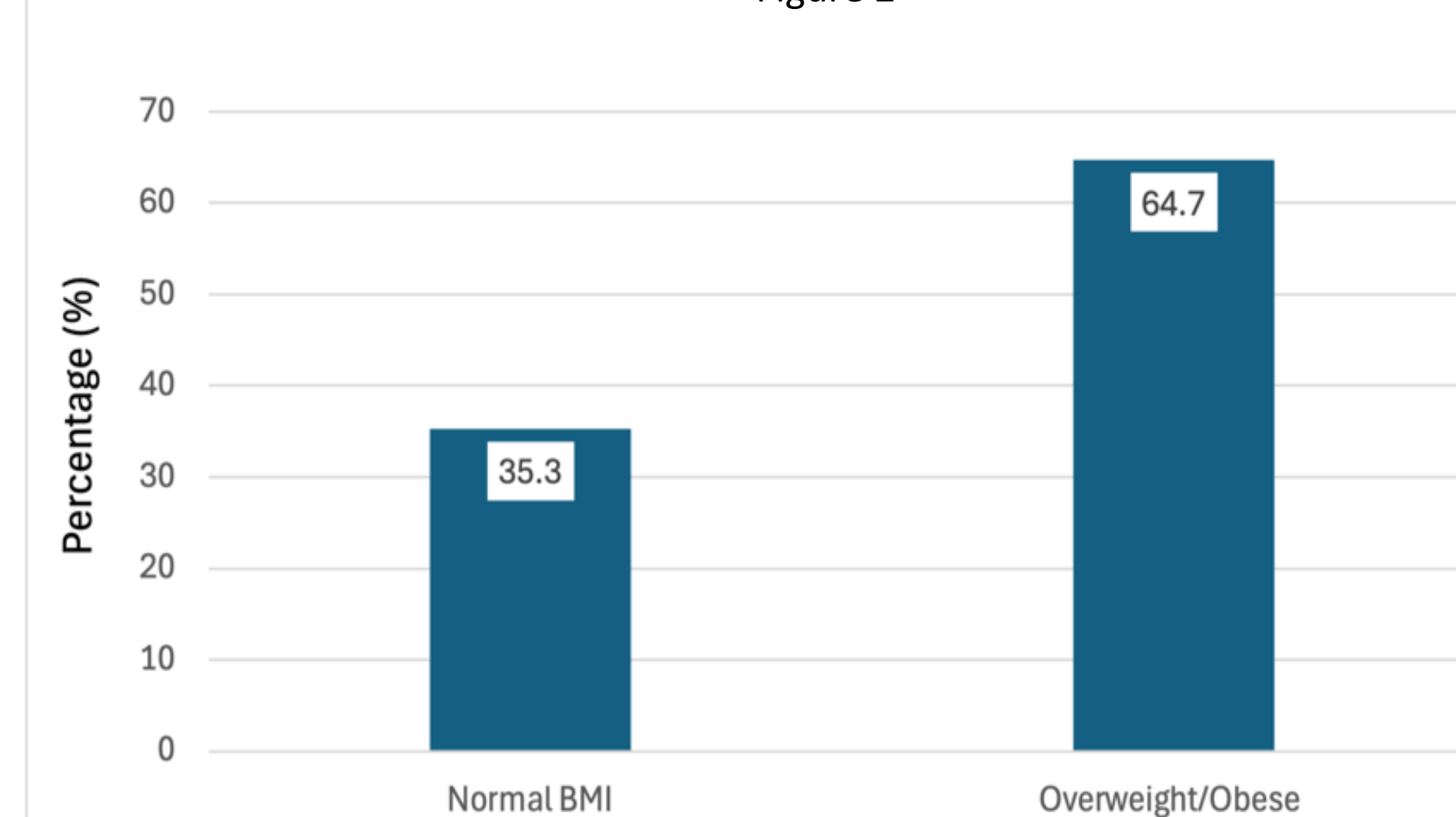


Figure 3

DISCUSSION



Our review demonstrates that remifentanil PCA was a safe analgesic option for patients in labour at all ranges of BMI with the PCA being discontinued in only 3.8% of cases due to excessive sedation. There was no correlation between BMI and an intervention.



Only 16.5% of patients required an anaesthetic intervention, most commonly an increase oxygen flow rate and whilst 64.7% of those patients' requiring intervention were overweight or obese, there were no adverse events.



We should continue to offer remifentanil PCA as a labour analgesic to patients living with obesity, following local protocols.



Larger, multi-centre reviews are warranted to further assess the safety profile of remifentanil in this patient cohort.

REFERENCES

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- Murray H, Hodgkinson P, Hughes D. Remifentanil patient-controlled intravenous analgesia during labour: a retrospective observational study. Int J Obstet Anesth. 2019 Aug;39:29-34. doi: 10.1016/j.ijoa.2019.05.012. Epub 2019 Jun 5. PMID: 31230993.