

Intravenous methadone versus intrathecal morphine for analgesia following cesarean delivery: a randomized clinical trial



Catherine Gao, MD, Breta Awuku, MD, Mark Rollins, MD PhD, Hans Sviggum, MD, Rochelle Pompeian, MD, Mingchun Liu, MD, Emily Sharpe, MD

Background

- Postpartum pain is linked to postpartum depression, breastfeeding difficulties, and chronic pain.¹
- Intrathecal morphine (ITM), the gold standard for post-cesarean analgesia, is not always feasible.
- Intravenous (IV) methadone as an alternative:
 - Long-lasting systemic opioid
 - Anti-N-methyl-d-aspartate (NMDA) receptor antagonism
 - Serotonin and norepinephrine reuptake inhibition
- A retrospective study showed that IV methadone lowers pain scores and opioid requirements for cesarean under general anesthesia.²

Hypothesis

In patients undergoing scheduled cesarean delivery, there would be a decrease in opioid requirement at 0-48 hours in patients receiving 0.2 mg/kg (maximum 20 mg) intravenous methadone compared to patients that received 150 mcg intrathecal morphine.

SOAP 2026
**ANNUAL
MEETING**
SOAP
Society for Obstetric
Anesthesia and Perinatology



MONTREAL, QUÉBEC, CANADA
LE WESTIN MONTREAL
APRIL 29-MAY 3, 2026

1. Landau R. *Int J Obstet Anesth.* 2023;54:103644.
2. Russell T. *Int J Obstet Anesth.* 2013;22(1):47-51.

FROM DISCOVERY TO DELIVERY: BRIDGING RESEARCH AND CLINICAL CARE IN OBSTETRIC ANESTHESIA



Study Design and Methods

- Single-center prospective, randomized, double-blinded pilot
- 30 patients undergoing scheduled cesarean delivery
- Exclusion criteria:
 - Chronic pain
 - Chronic opioid use
 - Substance use disorder
 - BMI > 50.0 kg/m²

Intravenous Methadone (n = 15)
• Standardized spinal anesthesia • IV methadone: 0.2 mg/kg total body weight (max dose: 20 mg) • Intrathecal placebo

Intrathecal Morphine (n = 15)
• Standardized spinal anesthesia • 150 mcg intrathecal morphine • IV placebo

Primary outcome: Total opioid consumption at 24-48 hours after delivery in the groups.

Secondary outcomes: NRS pain scores, obstetric quality of recovery (ObsQoR10), and side effects were assessed at 12, 24, 36, 48 hours in person and at one-week postpartum via text message.

Results

- No significant difference in maternal demographic or obstetric factors
- Patients in the methadone group required more opioids across all time points (Figure 1)
- No significant difference in pain scores (Figure 2), ObsQoR10, or global health state scores
- No significant difference in intra-operative and post-operative respiratory depression at all time points
- Patients in IV methadone group did report a significantly lower rate of pruritus across all timepoints ($p < 0.05$, Figure 3)

Figure 1. Median Opioid Requirements (MME) by Time Period

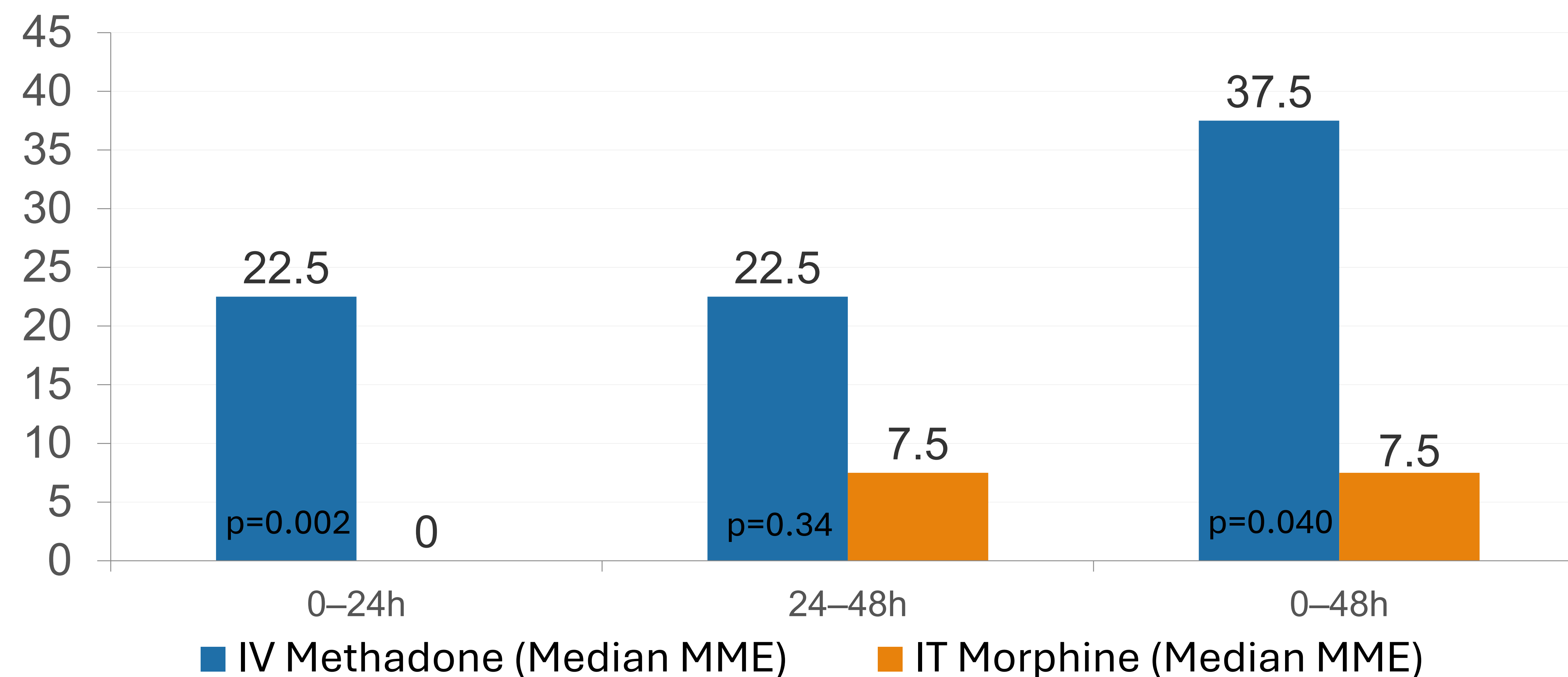


Figure 2. Median Worst Pain (0-10) by Time Period

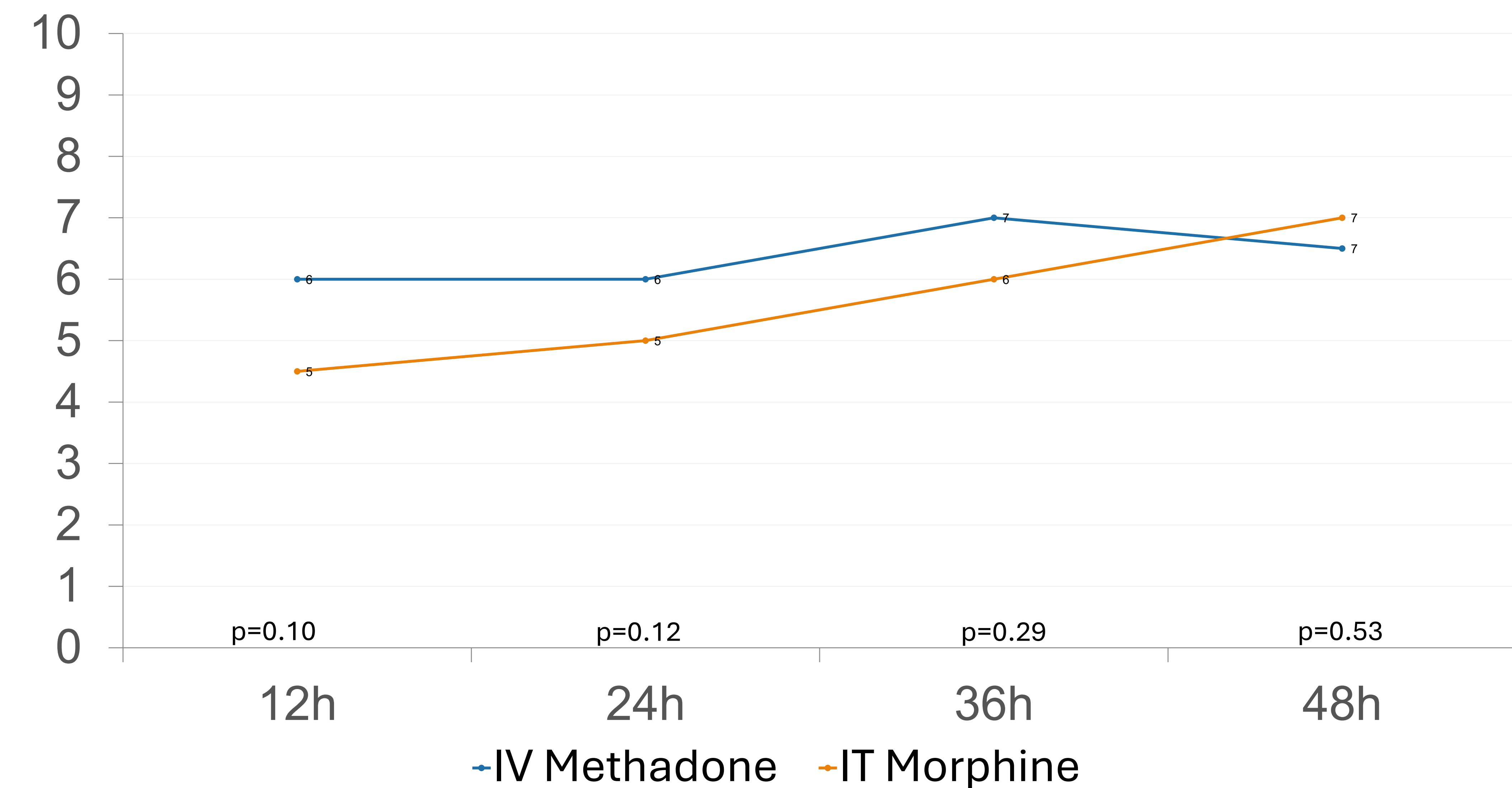
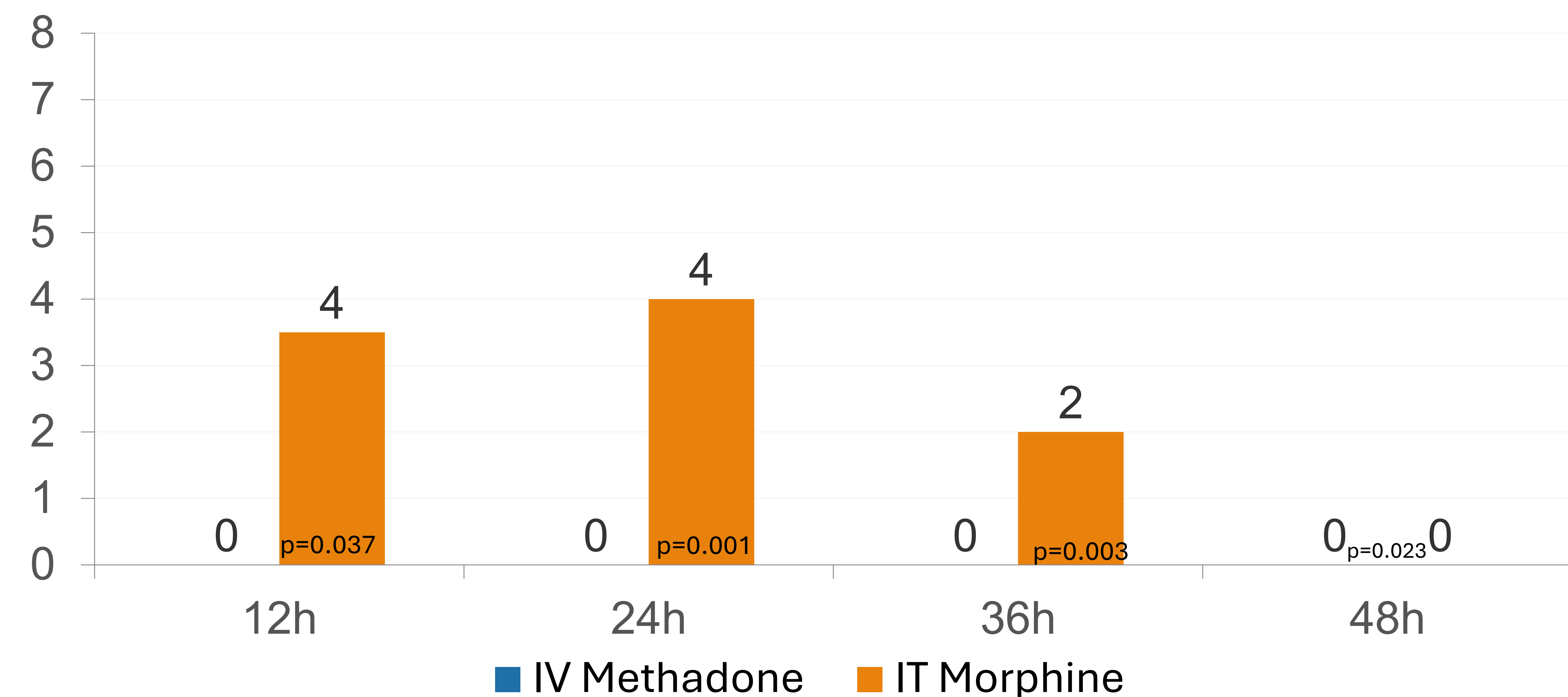


Figure 3. Pruritus Scores (Median) by Time Period



Conclusion & Discussion

- Patients who received ITM required less opioids in the first 48 hours after cesarean delivery compared to those who received IV methadone.
- Although IV methadone did not appear to provide superior analgesia compared to ITM, it enabled comparable post-cesarean recovery with an acceptable side-effect profile.
- In patients who do not receive ITM, consider using IV methadone for post-cesarean analgesia.



MONTRÉAL, QUÉBEC, CANADA
LE WESTIN MONTREAL
APRIL 29-MAY 3, 2026

FROM DISCOVERY TO DELIVERY: BRIDGING RESEARCH AND CLINICAL CARE IN OBSTETRIC ANESTHESIA

