

# Comparison of the post-operative recovery and side effect profile of spinal anaesthesia with and without intra-thecal morphine for primary knee arthroplasty

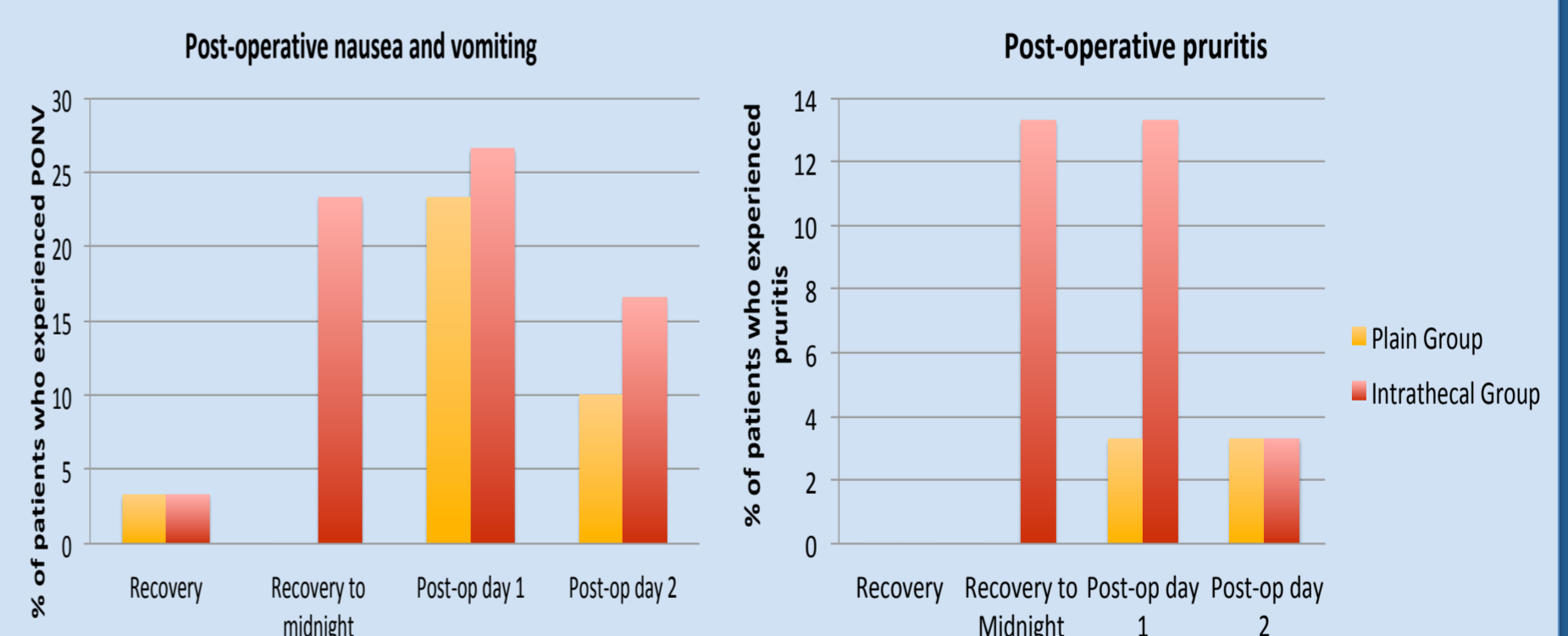
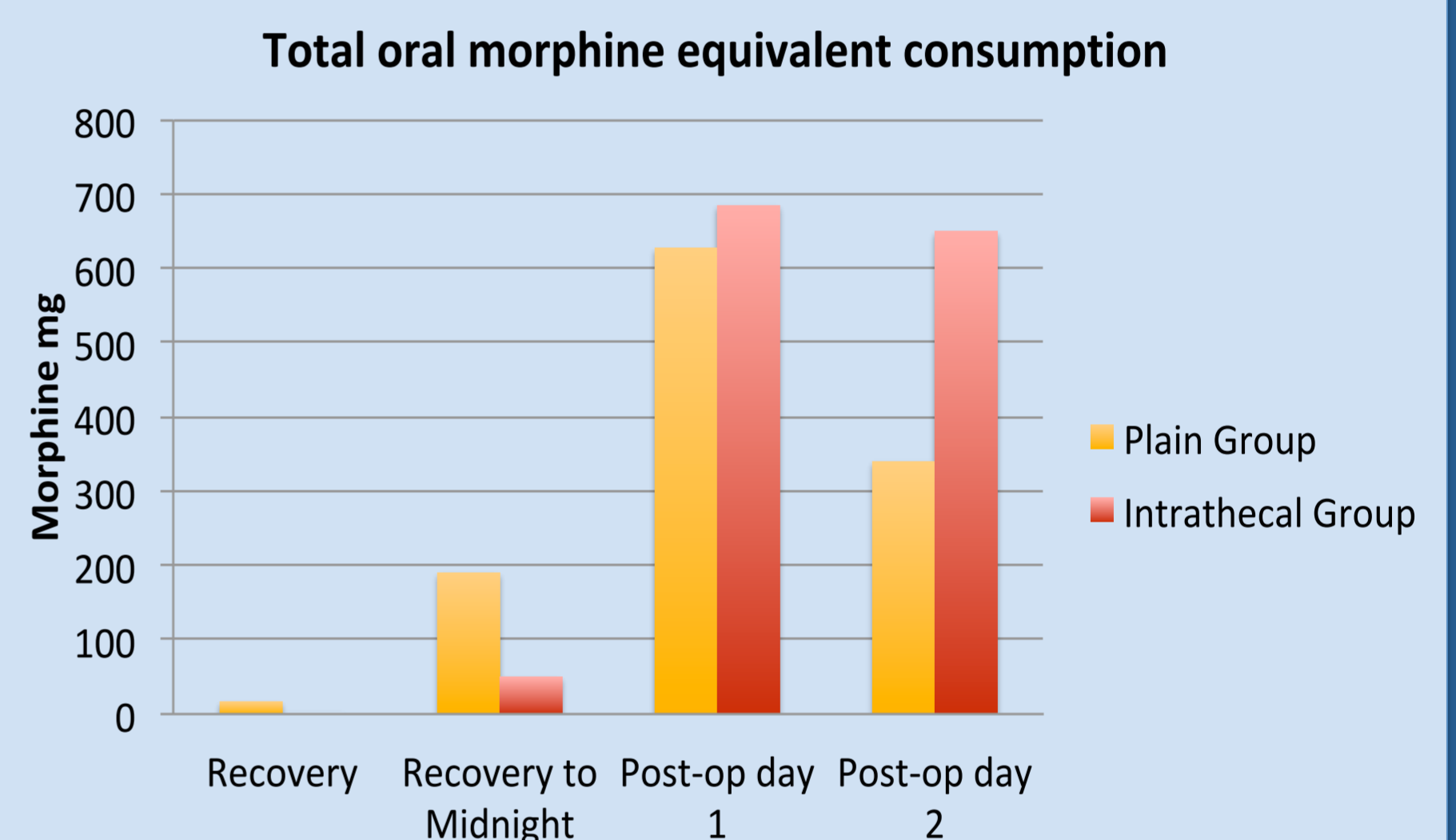
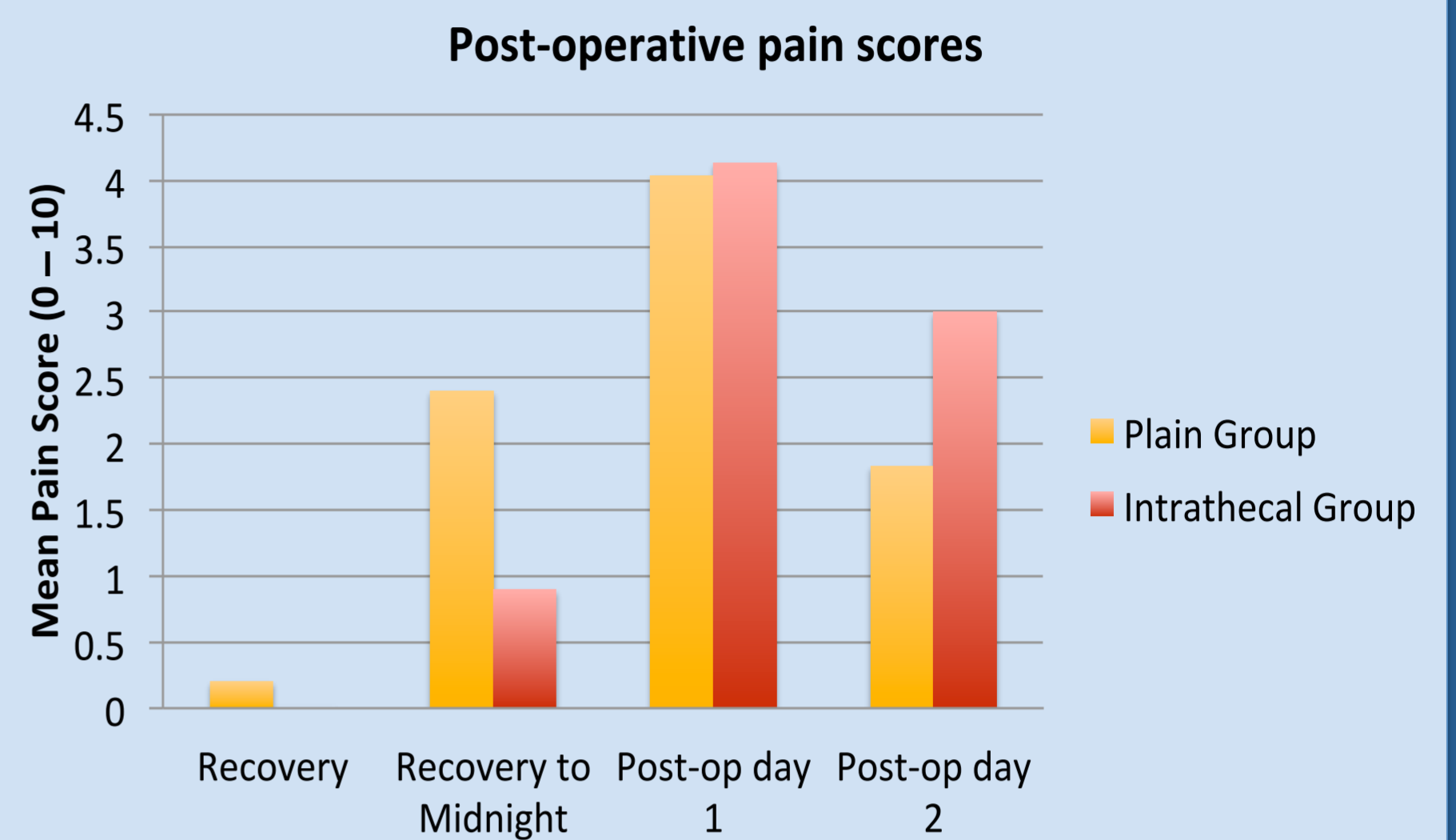
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**Introduction:** Spinal anaesthesia is the preferred option over general anaesthesia for elective primary knee arthroplasty, given its association with positive post-operative outcome benefits<sup>1</sup>, and is usual practice in our department, currently with intra-thecal morphine. But does intra-thecal morphine result in a burden of morphine-related side effects? Or is it worth the trade of for the analgesic benefit? We aimed to establish the post-operative recovery and side-effect profile of patients receiving spinal anaesthesia with and without intra-thecal morphine for primary knee arthroplasty.

**Methods:** A retrospective case note analysis was undertaken of 30 patients who received plain spinal anaesthesia, followed by 30 patients who received intra-thecal morphine. Data was collected pertaining to post-operative pain scores, breakthrough analgesia consumption, incidence of morphine-related side effects and treatments administered. These were considered over four time periods: recovery, recovery to midnight, post-operative day 1 and post-operative day 2. We also analysed time to mobilisation, progression with physiotherapy and time to discharge.

Group Characteristics	Intrathecal Group (n=30)	Plain Group (n=30)
Mean Age	68 years	66.8 years
Sex	14 female, 16 male	18 female, 12 male
Mean Length of operation	118 minutes	122 minutes
Post-operative regular analgesia prescription	8/30 Paracetamol, Opiate 22/30 Paracetamol, NSAID, Opiate	10/30 Paracetamol, Opiate 20/30 Paracetamol, NSAID, Opiate
Mean Length of hospital stay	3.6 days	3.7 days

**Results:** There was no significant difference in mean pain score (0 to 10) or reports of pruritis, PONV or sedation between the two groups in recovery. From recovery to midnight a reduction in mean pain score was seen in the intra-thecal group (mean 0.9, versus mean 2.4 in plain group), but with 23% of patients (n=7) in the intra-thecal group experiencing PONV and 13% of patients (n=4) experiencing pruritis, compared to none in the plain group. Overall on day 0 the plain group had slightly higher morphine consumption, but still had slightly higher pain scores. The perceived benefit of intra-thecal morphine was subsequently lost with 50% of patients (n=15) in both groups reporting a pain score of 4 or more on day 1, and 50% reporting a pain score 1 or more on day 2. In fact, the mean pain score and breakthrough analgesia requirements were higher in the intrathecal group from day 1. There was no significant difference in PONV, sedation, catheterisation, or mobilisation between the two groups from day 1, although 13% of the intra-thecal group still experienced pruritis.



**Conclusion:** Intra-thecal morphine has analgesic benefits on post-operative day zero, with the trade off of PONV and pruritis. From day 1 this benefit seems to be lost, with pain scores evening out between groups. A patient centred approach, omitting intra-thecal morphine in those known to be sensitive to its side-effects, or the addition of regular ondansetron to alleviate PONV and pruritis are worthy considerations for our anaesthetic practice.

#### References:

- Johnson R, Kopp S, Burkle C, Duncan C, Jacob A, Erwin P, Murad M and Mantilla C. (2016). Neuraxial vs general anaesthesia for total hip and total knee arthroplasty: a systemic review of comparative-effectiveness research. *BJA*. 116(2), pp. 163-176.