THE EFFECT OF INTRA-OPERATIVE LIDOCAINE INFUSION ON POST-OPERATIVE OPIOID CONSUMPTION IN CHILDREN UNDERGOING POSTERIOR SPINAL INSTRUMENTATION AND FUSION FOR ADOLESCENT IDIOPATHIC SCOLIOSIS

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INTRODUCTION

• Posterior spinal instrumentation and fusion (PSIF) for adolescent idiopathic scoliosis (AIS) can be associated with severe post-operative pain.1,2,3
• Use of IV lidocaine infusion, as an opioid-sparing intra-operative adjunct, has been described in paediatric major abdominal surgery.4
• The aim of this retrospective chart review was to assess the effect of intra-operative lidocaine infusion on post-operative total intravenous morphine consumption in AIS patients undergoing PSIF.

METHODS

• We performed a retrospective review of 111 patients who had undergone PSIF for AIS between January 2017 and June 2019 at our tertiary pediatric center.
• All patients received an intra-operative sufentanil infusion of 0.1-0.5 mcg/kg/hr, and then a morphine loading dose of 50-100 mcg/kg (drug-dosing weight) at the end of the procedure (or hydromorphone equivalent).
• In addition, some patients received an intra-operative lidocaine infusion of 2mg/hr, at the anesthesiologist’s discretion.
• Post-operatively, all patients received a multi-modal analgesic regime consisting of paracetamol, ketorolac, clonidine, and a continuous intravenous morphine infusion which was continued on the ward and weaned according to our acute pain service’s protocol after 48h.
• Pregabalin was used for rescue breakthrough pain.

RESULTS

• Median patient age was 16.7 (IQR 15.1-18.1) years, of which 90 were female, who had a median number of levels of 11 (IQR 10-12) fused.
• Median post-operative total intravenous morphine consumption was 1,250 (IQR 897.5-1744) mcg/kg, compared to those receiving intra-operative intravenous lidocaine (n=9) requiring 720 (IQR 400-770) mcg/kg.
• Multivariate linear regression showed intra-operative lidocaine infusion (n=9; estimate: -588 mcg/kg, p=0.015) and number of levels fused (108 mcg/kg/level, p=0.009) had significant associations with post-operative total intravenous morphine consumption.
• Male sex (n=21; -169 mcg/kg, p=0.27), age (15 mcg/kg/year, p=0.61), history of anxiety (n=8; 34 mcg/kg, p=0.88), post-operative clonidine (n=11; 132 mcg/kg, p=0.51) or pregabalin use (n=20; -115 mcg/kg, p=0.48) did not.

CONCLUSION

Intra-operative lidocaine infusion was associated with a reduction of total post-operative intravenous morphine consumption in AIS patients undergoing PSIF. More trials are warranted to examine this opioid-sparing effect further.