**Supplementary Table 3.** Summary of key results from studies evaluating systemic analgesics, systemic analgesic adjuncts and regional analgesia that are not recommended interventions in patients undergoing complex spine surgery.

| Study | Study design | Pain scores | Total opioid consumption | Baseline analgesia |
| --- | --- | --- | --- | --- |
| ***Preoperative*** |
| *Gabapentinoids* |
| Kim J et al, 201112 | Pregabalin 75 mg (n=28) vs prebagalin 150 mg (n=28) vs placebo (n=28) | NS | Favours pregabalin 150 mg group after 24 hours | Fentanyl and ketorolac PCA |
| ***Intraoperative*** |
| *Methadone* |
| Murphy S et al, 201714 | IV methadone (n=63) vs IV hydromorphone (n=57) | Favours methadone at rest and at movement | Favours hydromorphone in the first three postoperative days  | Hydromorphone PCA |
| Gottschalk A et al, 201115 | IV methadone 0,2 mg/kg (n=13) or continuous IV sufentanil infusion (n=16) | Favours methadone 48 hours postoperatively | Favours hydromorphone from the 48th hour postoperatively | Fentanyl, morphine or hydromorphone PCA |
| *Systemic local anaesthetics* |
| Farag E et al, 201316 | IV lidocaine 2 mg/kg/h (n=57) vs placebo (n=58) | NS | NS | Morphine PCA. (Fentanyl or hydromorphone if morphine is not tolerated) |
| Ibrahim A et al, 201817 | IV lidocaine bolus and continuous infusion (n=20) vs placebo (n=20) | Favours lidocaine group from the first 48h to 3 months | N/A | Ketorolac, acetaminophen and morphine |
| *Dexmedetomidine* |
| Naik B et al, 201625 | Dexmedetomidine (n=63) vs placebo (n=68) | NS | NS | Morphine PCA, oral oxycodone and acetaminophen |
| Hwang W et al, 201524 | Remifentanil (n=18) vs dexdor (n=19) | Favours dexmedetomidine group | Favours dexmedetomidine group | Morphine PCA |
| *Magnesium* |
| Jabbour H et al, 201427 | Ketamine + magnesium (n=25) vs ketamine (n=25) | NS | Favours Ketamine + magnesium group | Morphine PCA, acetaminophen and ketoprofen |
| *Multimodal technique* |
| Kim et al, 201628 | Celecoxib, pregabalin, acetaminophen and extended-release oxycodone + morphine PCA (n=40) vs morphine PCA (n=40) | Favours multimodal group | NS | Morphine PCA |
| Maheshwari et al, 202029 | Acetaminophen, gabapentin, ketamine and lidocaine (n=150) vs placebo (n=149) | NS | NS | Epidural analgesia or local wound infiltration, acetaminophen, gabapentin and opioids |
| ***Postoperative*** |
| *Blocks* |
| Chen K et al, 201941 | TLIP block with ropivacaine (n=30) vs placebo (n=30) | Favours TLIP block group | Favours TLIP block | Flurbiprofen + IV sufentanil PCA |
| *Local anaesthesics infiltration/infusion* |
| Greze J et al, 201739 | Ropivacaine (n=15) vs placebo (n=18) wound infiltration via a catheter  | NS | NS | Ketamine, acetaminophen, NSAIDs, nefopam and morphine PCA |
| Xu B et al, 201740 | Continuous ropivacaine wound infusion (n=35) vs flurbiprofen, pentazocine and palonosetron IV pump (n=36) | NS | NS | Flurbiprofen axetil, pentazocine and palonosetron |
| *Intrathecal anesthesia with opioids* |
| Ziegeler S et al 200838 | 0,4 mg of intrathecal morphine (n=23) vs placebo (n=23) | Favours morphine group in the 8 first hours | Favours morphine group at every time point from 0,5 to 20 hours | Diclofenac and piritramide PCA |
| *Epidural anaesthesia with opioids alone* |
| Offley S et al, 201337 | 10 mg (n=51) vs 15 mg of extended-release epidural morphine (n=47) | NS | NS | IV morphine PCA + oral hydrocodone, oxycodone or propoxyphene |

Abbreviations: NS : non significative, N/A : not applicable, NSAIDs : non-steroidal anti-inflammatory drugs , PCA : patient controlled analgesia, IV : intravenous, PACU : post anaesthesia care unit, TLIP : thoraco-lumbar interfascial plane, PCEA : patient controlled epidural analgesia, PCIA : patient controlled intraveinous analgesia