NICU Pain Management Clinical Guideline

Inclusion Criteria:
- Any postoperative patient in the NICU

CHOC Children's
Children's Hospital of Orange County

Recommendations Based on History of Anticipated Degree of Pain Associated with Surgery *and* History of Previous Opioid Exposure(s)

Potential for Mild Pain Procedures

- PEG
- Laparscopic procedures (G-tube, Ladd's, hernia repair)

Potential for Moderate Pain Procedures

- PDA Ligation
- Chest tube insertion and chest tube maintenance
- Gastrostomy tube with or without Nissen
- Abdominal drain insertion
- Gastroschisis silo placement
- Incarcerated hernia repair
- Anorectomalformation repair
- Hirschsprung's Disease Pull through
- VP shunt placement
- Myelomeningocele closure

Potential for Severe Pain Procedures

- Closure or reduction of abdominal wall defects
- CDH Repair
- TEF Repair
- Thoracotomy
- Exploratory laparotomy
- Critical airway procedure and/or tracheostomy
- Open/siloed abdomen
- Mandibular distraction

Discussion of airway security and effects of narcotics on respiratory depression necessary in preoperative huddle and with ongoing pain management decisions

Previous opioid exposure defined as greater than 7 days of opioid exposure within 1 month of present surgery

Approved by Evidence-Based Medicine Committee 9/18/19

Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

Guideline #1: Potential for MILD/MODERATE Post-Operative Pain

(see attached for listing of mild/moderate painful procedures)

Extubated or Intubated

Scheduled Acetaminophen IV 10 mg/kg/dose Q6 hrs for 48-72 hrs postoperative

and

Intermittent Morphine 0.05 mg/kg/dose IV PRN every 2 hours for breakthrough pain

*if experiencing pain with NPASS scores ≥ 4 upon *postoperative admission* to the NICU consider 1x dose of Fentanyl 1 mcg/kg/dose IV every 10 min PRN x1-2 doses *administered slowly*

NPASS Score -2 to -10
Heavy Sedation

- Consider reason for scores: planned sedation or was patient not reversed
- If unplanned sedation→ wean infusion rate or transition to PRN doses
- Continue NPASS scoring per protocol
- Continue Non-pharmacological interventions

NPASS Score -1 to -+3
Goal

- Adequate control of pain and sedation; no change recommended
- Continue NPASS scoring per protocol
- Continue Non-pharmacological interventions

NPASS Score ≥ 4
Danger Zone

- Utilize PRN Morphine IV dose
- Continue NPASS scoring per protocol
- Continue non-pharmacological interventions

≤ 3 PRN Doses in 12 hours

- Utilize PRN Morphine IV dose as needed
- Continue NPASS scoring per protocol
- Continue non-pharmacological interventions

≥ 3 PRN Doses in 12 hours

Extubated or Intubated

Administer prn dose and start low dose morphine continuous infusion

Opioid Naive	***Opioid Exposed***
Utilize low dose Morphine infusion of 0.02 mg/kg/hr Closely monitor patient respiratory status if extubated	Utilize low dose Morphine infusion of 0.05 mg/kg/hr • If on continuous infusion prior to procedure, then restart infusion and increase dose by 20% Reassess NPASS and titrate up (scores remaining ≥ 4) by 0.01 mg/kg/hr every 6-12 hrs

Guideline #2: Potential for SEVERE Post-Operative Pain

(see attached for listing of mild/moderate painful procedures)

Extubated or Intubated- engage in preoperative discussion of sedation needs and potential plan to keep patient intubated

Scheduled Acetaminophen IV 10 mg/kg/dose Q 6 hrs for 48-72 hrs postoperative

and

Start low dose continuous morphine infusion

*if experiencing pain with NPASS scores ≥ 4 upon *postoperative admission* to the NICU consider 1x dose of Fentanyl 1-2 mcg/kg/dose IV every 10 min PRN x1-2 doses *administered slowly*

**consider potential need for sedation (see below recommendations)

Opioid Naive	***Opioid Exposed***
Utilize low dose Morphine infusion of 0.03-0.05 mg/kg/hr Closely monitor patient respiratory status if extubated	Utilize low dose Morphine infusion of 0.05- 0.1 mg/kg/hr *or* increase current opioid infusion by 20% Reassess NPASS and titrate up (scores remaining ≥ 4) by 0.01 mg/kg/hr every 6-12 hrs Closely monitor patient respiratory status if extubated

Intermittent Morphine 0.05 mg/kg/dose IV PRN every 2 hours for breakthrough pain to start

- if increasing morphine infusion, the PRN dose and infusion hourly dose should be the same

NPASS Score -2 to -10
Heavy Sedation

- Consider reason for scores: planned sedation or was patient not reversed
- If unplanned sedation→ wean infusion rate or transition to PRN doses
- Continue NPASS scoring per protocol
- Continue Non-pharmacological interventions

NPASS Score -1 to +3
Goal

- Adequate control of pain and sedation; no change recommended
- Continue NPASS scoring per protocol
- Continue Non-pharmacological interventions

NPASS Score ≥ 4
Danger Zone

≤ 3 PRN Doses in 12 hours

- Utilize PRN Morphine IV dose as needed
- Continue NPASS scoring per protocol
- Continue non-pharmacological interventions

≥ 3 PRN Doses in 12 hours

Extubated or Intubated

Administer prn dose and increase morphine continuous infusion

Opioid Naive	***Opioid Exposed***
Increase Morphine infusion by 20% **Closely monitor patient respiratory status if extubated**	Increase Morphine infusion by 20% Consider Pain Team consult **Closely monitor patient respiratory status if extubated**

****Sedation Recommendations:** If morphine infusion requires > 2 rate/dose increases and ≥ 4 PRN doses are given within a 12 hr period after infusion started, consider the addition of *dexmedetomidine 0.2- 1 mcg/kg/hr.*
If experiencing continued agitation, consider addition of midazolam or Ativan

References

Aukes D, Roofthooft D, Simons WE, et al. (2015) Pain management in neonatal intensive care: evaluation of the compliance with guidelines. Clinical Journal of Pain, 9, 830-835

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