



Research
LITES RESEARCH PATHWAY
Practice Guideline

Study Purpose

Evaluate outcomes of a randomized administration of ketamine or fentanyl for specific trauma patients

Patient Presentation

Inclusion Criteria – ALL THREE must be met

Trauma activation and transport to Froedtert Hosp
Shock index greater than 0.9 (SI = HR/SBP)
Patient has a pain score greater than 5

Exclusion criteria – ANY excludes patient from study

- Male age less than 18 years
- Female age less than 50 years
- Current SBP greater than 180 systolic
- IV access not established
- Pain meds already received
- Advanced airway placed
- Known allergy to fentanyl or ketamine
- Pain management contraindicated by OEM practice guidelines
- Objection to study raised by patient or family
- Prisoner
- Pt wearing NO PAIN STUDY bracelet or necklace



Shock Index

Shock index equals heart rate divided by current systolic BP

$$SI = HR / SBP$$

See SHOCK INDEX REFERENCE TABLE on page 2

Numeric Pain Score

Pain score rating on 1-10 scale

SI Chart p.2
Dosing Chart p.3

Study Drug (blinded, pre-filled syringe)

- Dose: 0.1 mL/kg IV **slow push** over two minutes
- Note: Study drug should only be given IV route
- Max dose 10 mL
- 15 minutes between doses, up to two doses per patient

Quality Assurance:

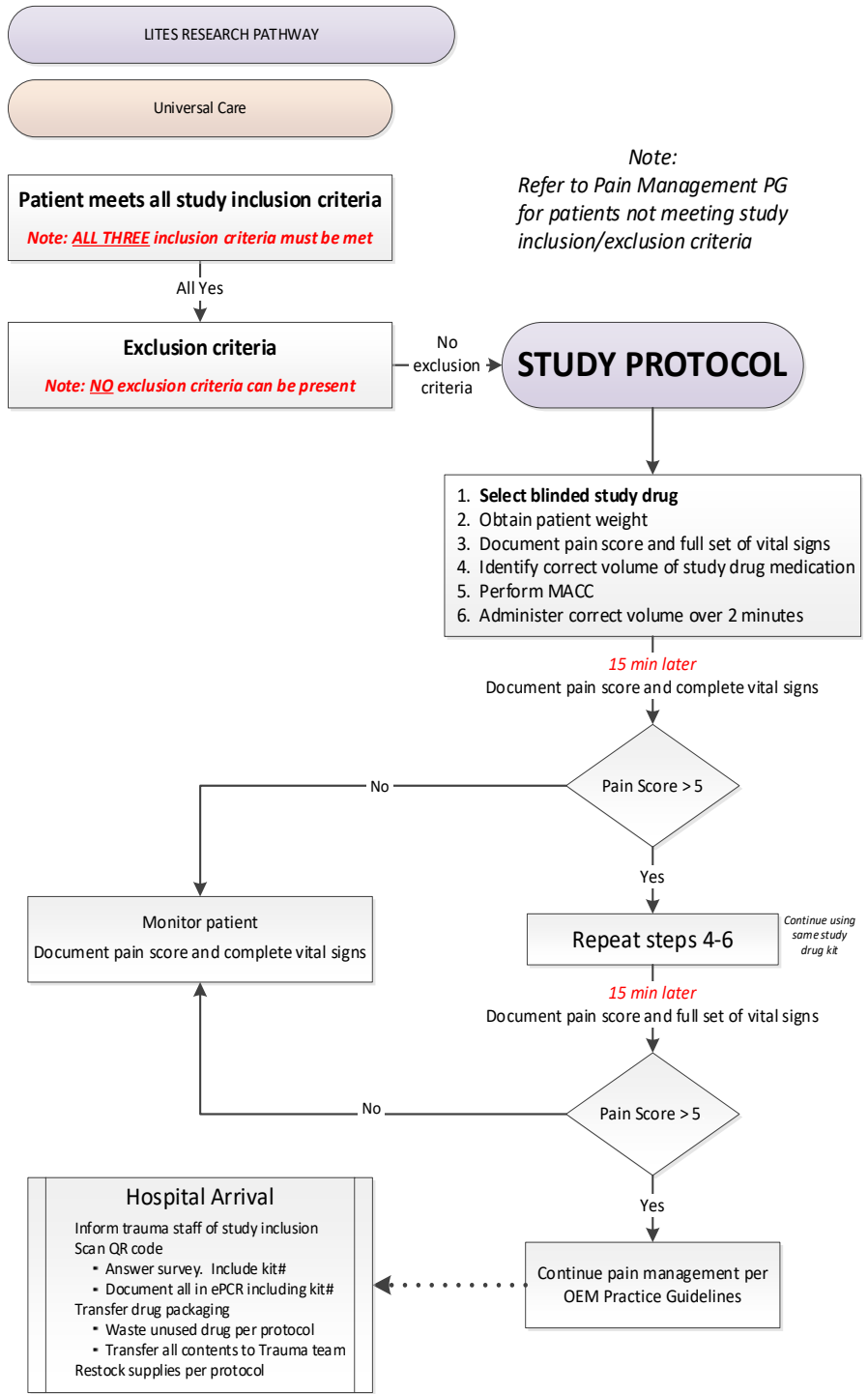
NEVER UTILIZE 2 STUDY KITS ON ONE PATIENT

Documentation

- KIT# MUST BE DOCUMENTED IN ePCR**
- Document opened kit and/or drug administration in OPIQ**
- Drug listed as 'LITES' study drug in both ePCR and OPIQ

Hospital Arrival

- Inform trauma staff of study inclusion
- Scan QR code
 - Answer survey. Include kit#
 - Document all in ePCR including kit#
- Transfer drug packaging
 - Waste unused drug per protocol
 - Transfer all contents to trauma team
- Restock supplies



Note:
Refer to Pain Management PG for patients not meeting study inclusion/exclusion criteria

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Revision: 2

Approved: Benjamin Weston, MD, MPH Medical Director
Approved: Dan Pojar, BSEMS, FP-C, NRP EMS Division Director
WI DHS EMS Approval:



SHOCK INDEX REFERENCE TABLE



Shock Index: Heart rate/Systolic BP
Compensated shock SI > 0.9

| | | Heart Rate | | | | | | | | | | | |
|-------------------|-----|------------|-----|------|------|------|------|------|------|------|------|------|-----|
| | | 70 | 80 | 90 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 |
| Systolic Pressure | 95 | 0.7 | 0.8 | 0.95 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 |
| | 100 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 |
| | 105 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 |
| | 110 | 0.6 | 0.7 | 0.8 | 0.91 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.5 | 1.6 |
| | 115 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 |
| | 120 | 0.6 | 0.7 | 0.8 | 0.8 | 0.92 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 | 1.4 | 1.5 |
| | 125 | 0.6 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.4 |
| | 130 | 0.5 | 0.6 | 0.7 | 0.8 | 0.8 | 0.92 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 1.4 |
| | 135 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 | 1.3 |
| | 140 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.9 | 0.93 | 1.0 | 1.1 | 1.1 | 1.2 | 1.3 |
| | 145 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.2 |
| | 150 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 0.93 | 1.0 | 1.1 | 1.1 | 1.2 |
| | 155 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.90 | 1.0 | 1.0 | 1.1 | 1.2 |
| | 160 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 0.94 | 1.0 | 1.1 | 1.1 |
| | 165 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.91 | 1.0 | 1.0 | 1.1 |
| | 170 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 0.94 | 1.0 | 1.1 |
| | 175 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 0.91 | 1.0 | 1.0 |
| | 180 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 0.94 | 1.0 |



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| LITES STUDY DRUG | | | | | | | | | | | | | | |
|--|--|---|--------|--|--------|------|--|---|--------|------|--------|------|--------|-------|
| LITES STUDY DRUG | ADULT DOSE | PEDIATRIC DOSE | | ADMINISTRATION GUIDELINE | | | INDICATIONS | CONTRA-INDICATIONS | MACC | | | | | |
| Trauma Analgesia IV SLOW PUSH | 0.1 mL/kg Max single dose 10 mL | Not indicated for age <18 yrs | | IV Route only Volume-based dosing Up to two doses per pt | | | Acute trauma Pt meets criteria for LITES study enrollment | Age < 18 yrs Female < 50 yrs Pain score ≤ 5 Shock index ≤ 0.9 Complete exclusion criteria listed in PG LITES Research Pathway | | | | | | |
| | | | | Concentration: supplied in 10 mL syringes (blinded Fentanyl or Ketamine) | | | | | | | | | | |
| Trauma Analgesia (LITES study) | Weight (kg) | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 |
| | Volume (0.1 mL/kg) | 4 mL | 4.5 mL | 5 mL | 5.5 mL | 6 mL | 6.5 mL | 7 mL | 7.5 mL | 8 mL | 8.5 mL | 9 mL | 9.5 mL | 10 mL |

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