2018 Arkansas Minimum Pre-hospital Clinical Guidelines

These guidelines were developed by the Medical Directors Council of the National Association of State EMS Officials (NASEMSO). These guidelines were then reviewed by the Arkansas Core Medical Directors Committee to address Arkansas specific guidelines. These guidelines will be maintained by both NASEMSO and the Arkansas Core Medical Directors to address updates in clinical guidelines, protocols or operating procedures. Arkansas medical directors and encouraged to use the guidelines at their discretion. These guidelines are considered the minimum guidelines that all EMS Agencies should adopt. EMS Agencies clinical guidelines, protocols or operating procedures should at a minimum meet these guidelines. These guidelines are either evidence-based or consensus-based and have been formatted for use by field EMS professionals.
Contents

INTRODUCTION ..................................................................................................................6

PURPOSE AND NOTES ......................................................................................................7
   TARGET AUDIENCE .....................................................................................................8
   NEW IN THE 2017 EDITION .......................................................................................8
   ACKNOWLEDGEMENTS ............................................................................................8

UNIVERSAL CARE ..........................................................................................................9
   UNIVERSAL CARE GUIDELINE ...............................................................................9
   FUNCTIONAL NEEDS ..............................................................................................17
   PATIENT REFUSALS ..............................................................................................21

CARDIOVASCULAR .......................................................................................................24
   ADULT AND PEDIATRIC SYNCOPE AND PRESYNCOPE ..................................24
   CHEST PAIN/ACUTE CORONARY SYNDROME (ACS)/ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION (STEMI) .........................................................28
   BRADYCARDIA ........................................................................................................31
   IMPLANTABLE VENTRICULAR ASSIST DEVICES .............................................35
   TACHYCARDIA WITH A PULSE ............................................................................38
   SUSPECTED STROKE/TRANSIENT ISCHEMIC ATTACK ......................................44

GENERAL MEDICAL .....................................................................................................47
   ABDOMINAL PAIN ..................................................................................................47
   ABUSE AND MALTREATMENT ...............................................................................50
   AGITATED OR VIOLENT PATIENT/BEHAVIORAL EMERGENCY .................54
   ANAPHYLAXIS AND ALLERGIC REACTION ......................................................60
   ALTERED MENTAL STATUS ...............................................................................65
   BACK PAIN .............................................................................................................68
   END-OF-LIFE CARE/PALLIATIVE CARE ..................................................................71
   HYPERGLYCEMIA ....................................................................................................74
   HYPOGLYCEMIA ....................................................................................................77
   NAUSEA-VOMITING ...............................................................................................81
   PAIN MANAGEMENT .............................................................................................84
   SEIZURES ................................................................................................................91
   SHOCK ....................................................................................................................96
   SICKLE CELL PAIN CRISIS ...................................................................................102

RESUSCITATION ........................................................................................................105
   CARDIAC ARREST (VF/VT/ASYSTOLE/PEA) ......................................................105
   ADULT POST-ROSC (RETURN OF SPONTANEOUS CIRCULATION) CARE .......114
   DETERMINATION OF DEATH/WITHHOLDING RESUSCITATIVE EFFORTS ..........117
   DO NOT RESUSCITATE STATUS/ADVANCE DIRECTIVES/HEALTHCARE POWER OF ATTORNEY (POA) STATUS .....................................................120
   TERMINATION OF RESUSCITATIVE EFFORTS .....................................................123

PEDIATRIC-SPECIFIC GUIDELINES .............................................................................128
   BRIEF RESOLVED UNEXPLAINED EVENT (BRUE) ..........................................128
   PEDIATRIC RESPIRATORY DISTRESS (BRONCHIOLITIS) .................................133
   PEDIATRIC RESPIRATORY DISTRESS (GROUP) ...............................................138
   NEONATAL RESUSCITATION ..............................................................................142
Shock

(Adapted from an evidence-based guideline created using the National Prehospital Evidence-Based Guideline Model Process)

Aliases
None noted

Patient Care Goals
1. Initiate early fluid resuscitation and vasopressors to maintain/restore adequate perfusion to vital organs
2. Differentiate between possible underlying causes of shock in order to promptly initiate additional therapy

Patient Presentation

Inclusion Criteria
1. Signs of poor perfusion (due to a medical cause) such as one or more of the following:
   a. Altered mental status
   b. Delayed/flash capillary refill
   c. Hypoxia (pulse oximetry less than 94%)
   d. Decreased urine output
   e. Respiratory rate greater than 20 in adults or elevated in children (see normal vital signs table)
   f. Hypotension for age (lowest acceptable systolic blood pressure in mm Hg):
      i. Less than 1 yo: 60
      ii. 1-10 yo: (age in years) (2)+70
      iii. Greater than 10 yo: 90
   g. Tachycardia for age, out of proportion to temperature [see Appendix VIII – Abnormal Vital Signs]
   h. Weak, decreased or bounding pulses
   i. Cool/mottled or flushed/ruddy skin
2. Potential etiologies of shock:
   a. Hypovolemia (poor fluid intake, excessive fluid loss (e.g. bleeding, SIADH, hyperglycemia excessive diuretics, vomiting, diarrhea)
   b. Sepsis
      i. Temperature instability:
         1. Less than 36°C or 96.8°F
         2. Greater than 38.5°C or 101.3°F
            and/or
         3. Tachycardia, warm skin, tachypnea
   c. Anaphylaxis (urticaria, nausea/vomiting, facial edema, wheezing)
   d. Signs of heart failure (hepatomegaly, rales on pulmonary exam, extremity edema, JVD)

Exclusion Criteria
Shock due to suspected trauma [see Trauma section guidelines]
Patient Management

Assessment
1. History
   a. History of GI bleeding
   b. Cardiac problems
   c. Stroke
   d. Fever
   e. Nausea/vomiting, diarrhea
   f. Frequent or no urination
   g. Syncopal episode
   h. Allergic reaction
   i. Immunocompromise (malignancy, transplant, asplenia)
   j. Adrenal insufficiency
   k. Presence of a central line or port
   l. Other risk of infection (spina bifida or other genitourinary anatomic abnormality)
2. Exam
   a. Airway/breathing (airway edema, rales, wheezing, pulse oximetry, respiratory rate)
   b. Circulation (heart rate, blood pressure, capillary refill)
   c. Abdomen (hepatomegaly)
   d. Mucous membrane hydration
   e. Skin (turgor, rash)
   f. Neurologic (GCS, sensorimotor deficits)
3. Determination of type of shock
   a. Cardiogenic
   b. Distributive (neurogenic, septic, anaphylactic)
   c. Hypovolemic
   d. Obstructive (e.g. pulmonary embolism, cardiac tamponade, tension pneumothorax)

Treatment and Interventions
1. Check vital signs
2. Administer oxygen as appropriate with a target of achieving 94-98% saturation
3. Cardiac monitor
4. Pulse oximetry and ETCO$_2$ (reading of less than 25 mmHg may be sign of poor perfusion)
5. Check blood sugar, and correct if less than 60 mg/dl
6. EKG
7. Check lactate, if available (greater than 2.0 mmol/L is abnormal)
8. Establish IV access - if unable to obtain within 2 attempts or less than 90 seconds, place an IO needle
9. IV fluids (30 mL/kg isotonic fluid; maximum of 1 liter) over less than 15 minutes, using a push-pull method of drawing up the fluid in a syringe and pushing it through the IV (preferred for pediatric patients) - may repeat up to 3 times based on patient’s condition and clinical impression
10. If there is a history of adrenal insufficiency or long-term steroid dependence, give:
    a. Hydrocortisone succinate, 2 mg/kg (maximum 100 mg) IV/IM (preferred)
    OR
    b. Methylprednisolone 2 mg/kg IV (maximum 125 mg)
11. Vasopressors (shock unresponsive to IV fluids)
   a. Cardiogenic shock, hypovolemic shock, obstructive shock:
      i. Norepinephrine - there is recent evidence that supports the use of
         norepinephrine as the preferred intervention. Although dopamine is often
         recommended for the treatment of symptomatic bradycardia, recent research
         indicates that patients in cardiogenic or septic shock treated with
         norepinephrine have a lower mortality rate compared to those treated with
         dopamine (initial norepinephrine dose: 0.05 – 0.5 mcg/minute titrated to effect)
      ii. Give epinephrine, 0.05-0.3 mcg/kg/minute
      iii. Give dopamine, 2-20 mcg/kg/minute
   b. Distributive shock (with the exception of anaphylactic shock):
      12. Give norepinephrine, 0.05-0.5 mcg/kg/minute
      13. Norepinephrine is the first-line drug of choice for neurogenic shock
      14. For anaphylactic shock, treat per the Anaphylaxis and Allergic Reaction guideline
      15. Provide advanced notification to the hospital
      16. Consider empiric antibiotics for suspected septic shock if transport time is anticipated to be
         greater than 1 hour, if blood cultures can be obtained in advance, and/or EMS has
         coordinated with regional receiving hospitals about choice of antibiotic therapy
      17. Antipyretics for fever
         a. Acetaminophen (15 mg/kg; maximum dose of 1000 mg)
         b. Ibuprofen (10 mg/kg; maximum dose of 800 mg)

Patient Safety Considerations
1. Recognition of cardiogenic shock - if patient condition deteriorates after fluid
   administration, rales or hepatomegaly develop, then consider cardiogenic shock and holding
   further fluid administration

Notes/Educational Pearls

Key Considerations
1. Early, aggressive IV fluid administration is essential in the treatment of suspected shock
2. Patients predisposed to shock:
   a. Immunocompromised (patients undergoing chemotherapy or with a primary or
      acquired immunodeficiency)
   b. Adrenal insufficiency (Addison’s disease, congenital adrenal hyperplasia, chronic or
      recent steroid use)
   c. History of a solid organ or bone marrow transplant
   d. Infants
   e. Elderly
3. In most adults, tachycardia is the first sign of compensated shock, and may persist for hours.
   Tachycardia can be a late sign of shock in children and a tachycardic child may be close to
   cardiovascular collapse
4. Hypotension indicates uncompensated shock, which may progress to cardiopulmonary
   failure within minutes
5. Hydrocortisone succinate, if available, is preferred over methylprednisolone and
   dexamethasone for the patient with adrenal insufficiency, because of its dual glucocorticoid
   and mineralocorticoid effects
a. Patients with no reported history of adrenal axis dysfunction may have adrenal suppression due to their acute illness, and hydrocortisone should be considered for any patient showing signs of treatment-resistant shock
b. Patients with adrenal insufficiency may have an emergency dose of hydrocortisone available that can be administered IV or IM

Pertinent Assessment Findings
1. Decreased perfusion manifested by altered mental status, or abnormalities in capillary refill or pulses, decreased urine output (less than 1 mL/kg/hr):
   a. Cardiogenic, hypovolemic, obstructive shock: capillary refill greater than 2 seconds, diminished peripheral pulses, mottled cool extremities
   b. Distributive shock: flash capillary refill, bounding peripheral pulses

Quality Improvement

Associated NEMSIS Protocol(s) (eProtocol.01)
- 9914127 – Medical-Hypotension/Shock (Non-Trauma)

Key Documentation Elements
- Medications administered
- Full vital signs with reassessment every 15 minutes or as appropriate
- Lactate level (if available)
- Neurologic status assessment [see Appendix VII]
- Amount of fluids given

Performance Measures
- Percentage of patients who have full vital signs (HR, RR, BP, T, O2) documented
- Presence of a decision support tool (laminated card, a protocol, or electronic alert) to identify patients in shock
- Percentage of patients with suspected shock for whom advanced notification to the hospital was provided
- Mean time from abnormal vitals to initiation of a fluid bolus
- Percentage of patients who receive pressors for ongoing hypotension after receiving 30 mL/kg isotonic fluid in the setting of shock

References

Arkansas Updated May 2018


