Tactical Combat Casualty Care Guidelines

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* Changes from the TCCC guidelines published in the 2006 Sixth Edition of the Prehospital Trauma Life Support Manual are noted in **bolded text.**

Basic Management Plan for Care Under Fire

1. Return fire and take cover.

2. Direct or expect casualty to remain engaged as a combatant if appropriate.

3. Direct casualty to move to cover and apply self-aid if able.

4. Try to keep the casualty from sustaining additional wounds.

5. Airway management is generally best deferred until the Tactical Field Care phase.

6. Stop *life-threatening* external hemorrhage if tactically feasible:
   - Direct casualty to control hemorrhage by self-aid if able.
   - **Use a CoTCCC-recommended tourniquet for hemorrhage that is anatomically amenable to tourniquet application.**
   - **Apply the tourniquet proximal to the bleeding site, over the uniform, tighten, and move the casualty to cover.**

Basic Management Plan for Tactical Field Care

1. Casualties with an altered mental status should be disarmed immediately.

2. Airway Management
    a. Unconscious casualty without airway obstruction:
        - Chin lift or jaw thrust maneuver
        - Nasopharyngeal airway
        - Place casualty in recovery position
    b. Casualty with airway obstruction or impending airway obstruction:
        - Chin lift or jaw thrust maneuver
        - Nasopharyngeal airway
        - Allow casualty to assume any position that best protects the airway, to include sitting up.
        - Place unconscious casualty in recovery position.
        - If previous measures unsuccessful:
            - Surgical cricothyroidotomy (with lidocaine if conscious)

3. Breathing

a. In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax and decompress the chest on the side of the injury with a 14-gauge, 3.25 inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed towards the heart.

b. All open and/or sucking chest wounds should be treated by immediately applying an occlusive material to cover the defect and securing it in place. Monitor the casualty for the potential development of a subsequent tension pneumothorax.

4. Bleeding

a. Assess for unrecognized hemorrhage and control all sources of bleeding. If not already done, use a CoTCCC-recommended tourniquet to control life-threatening external hemorrhage that is anatomically amenable to tourniquet application or for any traumatic amputation. Apply directly to the skin 2-3 inches above wound.

b. For compressible hemorrhage not amenable to tourniquet use or as an adjunct to tourniquet removal (if evacuation time is anticipated to be longer than two hours), use Combat Gauze as the hemostatic agent of choice with WoundStat as the backup (if the primary agent is not successful at controlling the hemorrhage or if the wound characteristics call for a granular agent.) Both

agents should be applied with at least 3 minutes of direct pressure. Before releasing any tourniquet on a casualty who has been resuscitated for hemorrhagic shock, ensure a positive response to resuscitation efforts (i.e., a peripheral pulse normal in character and normal mentation if there is no traumatic brain injury (TBI).

c. Reassess prior tourniquet application. Expose wound and determine if tourniquet is needed. If so, move tourniquet from over uniform and apply directly to skin 2-3 inches above wound. If tourniquet is not needed, use other techniques to control bleeding.

d. When time and the tactical situation permit, a distal pulse check should be accomplished. If a distal pulse is still present, consider additional tightening of the tourniquet or the use of a second tourniquet, side by side and proximal to the first, to eliminate the distal pulse.

e. Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.

5. Intravenous (IV) access
   - Start an 18-gauge IV or saline lock if indicated.
   - If resuscitation is required and IV access is not obtainable, use the intraosseous (IO) route.

6. Fluid resuscitation
   Assess for hemorrhagic shock; altered mental status (in the absence of head injury) and weak or absent peripheral pulses are the best field indicators of shock.
   a. If not in shock:
      - No IV fluids necessary
      - PO fluids permissible if conscious and can swallow
   b. If in shock:
      - Hextend, 500-mL IV bolus
      - Repeat once after 30 minutes if still in shock.
      - No more than 1000 mL of Hextend
   c. Continued efforts to resuscitate must be weighed against logistical and tactical considerations and the risk of incurring further casualties.
   d. If a casualty with TBI is unconscious and has no peripheral pulse, resuscitate to restore the radial pulse.

7. Prevention of hypothermia
   a. Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.
   b. Replace wet clothing with dry if possible.
   c. Apply Ready-Heat Blanket to torso.
   d. Wrap in Blizzard Rescue Blanket.

e. Put Thermo-Lite Hypothermia Prevention System Cap on the casualty's head, under the helmet.
f. Apply additional interventions as needed and available.
g. If mentioned gear is not available, use dry blankets, poncho liners, sleeping bags, body bags, or anything that will retain heat and keep the casualty dry.

8. Penetrating Eye Trauma

If a penetrating eye injury is noted or suspected:

a) Perform a rapid field test of visual acuity.
b) Cover the eye with a rigid eye shield (NOT a pressure patch.)
c) Ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given as outlined below if oral moxifloxacin cannot be taken.

9. Monitoring
Pulse oximetry should be available as an adjunct to clinical monitoring. Readings may be misleading in the settings of shock or marked hypothermia.

10. Inspect and dress known wounds.

11. Check for additional wounds.

12. Provide analgesia as necessary.
a. Able to fight:
These medications should be carried by the combatant and self-administered as soon as possible after the wound is sustained.
- Mobic, 15 mg PO once a day
- Tylenol, 650-mg bilayer caplet, 2 PO every 8 hours
b. Unable to fight:
Note: Have naloxone readily available whenever administering opiates.
- Does not otherwise require IV/IO access
  - Oral transmucosal fentanyl citrate (OTFC), 800 ug transbuccally
    - Recommend taping lozenge-on-a-stick to casualty's finger as an added safety measure
    - Reassess in 15 minutes
    - Add second lozenge, in other cheek, as necessary to control severe pain.
    - Monitor for respiratory depression.
- IV or IO access obtained:
  - Morphine sulfate, 5 mg IV/IO
    - Reassess in 10 minutes.
    - Repeat dose every 10 minutes as necessary to

control severe pain.
- Monitor for respiratory depression
- Promethazine, 25 mg IV/IM/IO every 6 hours as needed for nausea or for synergistic analgesic effect

13. Splint fractures and recheck pulse.

14. Antibiotics: recommended for all open combat wounds
    a. If able to take PO:
        - Moxifloxacin, 400 mg PO one a day
    b. If unable to take PO (shock, unconsciousness):
        - Cefotetan, 2 g IV (slow push over 3-5 minutes) or IM every 12 hours
          or
        - Ertapenem, 1 g IV/IM once a day

15. Communicate with the casualty if possible.
    - Encourage; reassure
    - Explain care

16. Cardiopulmonary resuscitation (CPR)
    Resuscitation on the battlefield for victims of blast or penetrating trauma who have no pulse, no ventilations, and no other signs of life will not be successful and should not be attempted.

17. Documentation of Care
    Document clinical assessments, treatments rendered, and changes in the casualty's status **on a TCCC Casualty Card.** Forward this information with the casualty to the next level of care.

Basic Management Plan for Tactical Evacuation Care

*** The new term "Tactical Evacuation" includes both Casualty Evacuation (CASEVAC) and Medical Evacuation (MEDEVAC) as defined in Joint Publication 4-02.**

1. Airway Management
    a. Unconscious casualty without airway obstruction:
        - Chin lift or jaw thrust maneuver
        - Nasopharyngeal airway
        - Place casualty in recovery position
    b. Casualty with airway obstruction or impending airway obstruction:
        - Chin lift or jaw thrust maneuver
        - Nasopharyngeal airway
        - Allow casualty to assume any position that best protects the airway, to include sitting up.
        - Place unconscious casualty in recovery position.
        - If above measures unsuccessful:
            - Laryngeal Mask Airway (LMA)/intubating LMA or
            - Combitube or
            - Endotracheal intubation or
            - Surgical cricothyroidotomy (with lidocaine if conscious).
    c. Spinal immobilization is not necessary for casualties with penetrating trauma.

2. Breathing
    a. In a casualty with progressive respiratory distress and known or suspected torso trauma, consider a tension pneumothorax and decompress the chest on the side of the injury with a 14-gauge, 3.25 inch needle/catheter unit inserted in the second intercostal space at the midclavicular line. Ensure that the needle entry into the chest is not medial to the nipple line and is not directed towards the heart.
    b. Consider chest tube insertion if no improvement and/or long transport is anticipated.
    c. Most combat casualties do not require supplemental oxygen, but administration of oxygen may be of benefit for the following types of casualties:
        - Low oxygen saturation by pulse oximetry
        - Injuries associated with impaired oxygenation
        - Unconscious casualty
        - Casualty with TBI (maintain oxygen saturation > 90%)
        - Casualty in shock
        - Casualty at altitude
    d. All open and/or sucking chest wounds should be treated by immediately applying an occlusive material to cover the defect

and securing it in place. Monitor the casualty for the potential development of a subsequent tension pneumothorax.

3. Bleeding

a. Assess for unrecognized hemorrhage and control all sources of bleeding. If not already done, use a CoTCCC-recommended tourniquet to control life-threatening external hemorrhage that is anatomically amenable to tourniquet application or for any traumatic amputation. Apply directly to the skin 2-3 inches above wound.

b. For compressible hemorrhage not amenable to tourniquet use or as an adjunct to tourniquet removal (if evacuation time is anticipated to be longer than two hours), use Combat Gauze as the hemostatic agent of choice with WoundStat as the backup (if the primary agent is not successful at controlling the hemorrhage or if the wound characteristics call for a granular agent.) Both agents should be applied with at least 3 minutes of direct pressure. Before releasing any tourniquet on a casualty who has been resuscitated for hemorrhagic shock, ensure a positive response to resuscitation efforts (i.e., a peripheral pulse normal in character and normal mentation if there is no TBI.)

c. Reassess prior tourniquet application. Expose wound and determine if tourniquet is needed. If so, move tourniquet from over uniform and apply directly to skin 2-3 inches above wound. If tourniquet is not needed, use other techniques to control bleeding.

d. When time and the tactical situation permit, a distal pulse check should be accomplished. If a distal pulse is still present, consider additional tightening of the tourniquet or the use of a second tourniquet, side by side and proximal to the first, to eliminate the distal pulse.

e. Expose and clearly mark all tourniquet sites with the time of tourniquet application. Use an indelible marker.

4. Intravenous (IV) access

a. Reassess need for IV access.

- If indicated, start an 18-gauge IV or saline lock
- If resuscitation is required and IV access is not obtainable, use intraosseous (IO) route.

5. Fluid resuscitation

Reassess for hemorrhagic shock (altered mental status in the absence of brain injury and/or change in pulse character.)

a. If not in shock:

- No IV fluids necessary.
- PO fluids permissible if conscious and can swallow.

b. If in shock:

- Hextend 500-mL IV bolus.
- Repeat once after 30 minutes if still in shock.
- No more than 1000 mL of Hextend.

c. Continue resuscitation with packed red blood cells (PRBCs), Hextend, or Lactated Ringer's solution (LR) as indicated.

d. If a casualty with TBI is unconscious and has a weak or absent peripheral pulse, resuscitate as necessary to maintain a systolic blood pressure of 90 mmHg or above.

6. Prevention of hypothermia

a. Minimize casualty's exposure to the elements. Keep protective gear on or with the casualty if feasible.

b. Continue Ready-Heat Blanket, Blizzard Rescue Wrap, and Thermo-Lite Cap.

c. Apply additional interventions as needed.

d. Use the Thermal Angel or other portable fluid warmer on all IV sites, if possible.

e. Protect the casualty from wind if doors must be kept open.

7. Penetrating Eye Trauma

If a penetrating eye injury is noted or suspected:

a) Perform a rapid field test of visual acuity.

b) Cover the eye with a rigid eye shield (NOT a pressure patch).

c) Ensure that the 400 mg moxifloxacin tablet in the combat pill pack is taken if possible and that IV/IM antibiotics are given as outlined below if oral moxifloxacin cannot be taken.

8. Monitoring

Institute pulse oximetry and other electronic monitoring of vital signs, if indicated.

9. Inspect and dress known wounds if not already done.

10. Check for additional wounds.

11. Provide analgesia as necessary.

a. Able to fight:

- Mobic, 15 mg PO once a day
- Tylenol, 650-mg bilayered caplet, 2 PO every 8 hours

b. Unable to fight:

Note: Have naloxone readily available whenever administering opiates.

- Does not otherwise require IV/IO access:
  - Oral transmucosal fentanyl citrate (OTFC) 800 ug transbuccally
    - Recommend taping lozenge-on-a-stick to

casualty's finger as an added safety measure.
- Reassess in 15 minutes.
- Add second lozenge, in other cheek, as necessary to control severe pain.
- Monitor for respiratory depression.

- IV or IO access obtained:
  - Morphine sulfate, 5 mg IV/IO
    - Reassess in 10 minutes
    - Repeat dose every 10 minutes as necessary to control severe pain.
    - Monitor for respiratory depression.
- Promethazine, 25 mg IV/IM/IO every 6 hours as needed for nausea or for synergistic analgesic effect.

12. Reassess fractures and recheck pulses.

13. Antibiotics: recommended for all open combat wounds
    a. If able to take PO:
       - Moxifloxacin, 400 mg PO once a day
    b. If unable to take PO (shock, unconsciousness):
       - Cefotetan, 2 g IV (slow push over 3-5 minutes) or IM every 12 hours,
         or
       - Ertapenem, 1 g IV/IM once a day

14. The Pneumatic Antishock Garment (PASG) may be useful for stabilizing pelvic fractures and controlling pelvic and abdominal bleeding. Application and extended use must be carefully monitored. The PASG is contraindicated for casualties with thoracic or brain injuries.

15. Documentation of Care
    Document clinical assessments, treatments rendered, and changes in casualty's status **on a TCCC Casualty Card**. Forward this information with the casualty to the next level of care.