



Santa Cruz County EMS Agency

Protocol No. T4

MANAGEMENT OF SIGNIFICANT EXTERNAL HEMORRHAGE

I. BLS Treatment Protocol:

- A. Treat life threats. (See Policy 4000 *Life Threats*).
- B. Apply substantial direct pressure using 4x4 gauze pads, abdominal, or trauma dressings. If bleeding saturates the dressing, leave in place the dressing material that is in contact with the wound, and replace outer layers with fresh dressing. Secure with pressure dressing.
- C. Hemorrhage to a limb:
 1. In cases where substantial bleeding to a limb cannot be controlled with direct pressure and plain gauze, apply a tourniquet 2-3 inches above the wound and tighten until bleeding stops. Assess distal circulation for absence of a pulse and bleeding control. Apply a visible tag (using two inch tape, a triage tag, etc.) and mark it with a large "T" and the time that the tourniquet was applied. Inform all subsequent care providers of the location of the tourniquet, its effectiveness and its time of application.
 2. If the initial tourniquet does not control bleeding, a second tourniquet may be applied 2-3 inches above the first, and marked accordingly.
 3. If substantial bleeding persists despite the use of direct pressure, tourniquets, and pressure dressings, consider the patient in extremis and transport to the closest, most appropriate facility.
 4. Prepare for transport/transfer of care.
- D. Hemorrhage to the head, neck, or trunk:
 1. Large, gaping wounds to the patient's head, neck, or trunk should have pooled blood cleared out and then packed with gauze and secured as needed.
 2. Avoid bulky dressings that do not allow isolation of the actual location of the bleeding, and merely act as a blood sponge. It is possible for a patient to exsanguinate into bulky dressings applied without regard to hemostasis.
 3. If substantial bleeding persists despite the use of direct pressure and gauze, consider the patient in extremis and transport to the closest, most appropriate facility.

II. ALS Treatment Protocol:

- A. Treat life threats. (See Policy 4000 *Life Threats*).
- B. Continue all BLS interventions listed above.

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1. If substantial bleeding persists despite use of direct pressure, place hemostatic gauze directly on the source of the bleeding and apply direct pressure for at least 3 minutes. Secure with a pressure dressing.
 - C. Triage the patient and expedite transport to the appropriate facility.
 - D. Treat other injuries and complaints as needed.
 - E. For pain control refer to pain management policy (Policy 5600 *Pain Management*)
 - F. Transport.
 - G. Contact Base Station as needed.
- III. Notes:
- A. Elevating bleeding extremities or applying pressure to arteries ("pressure points") has not been found to reduce substantial bleeding. These actions are not recommended in the treatment of significant external bleeding.
 - B. Life threatening hemorrhage to a limb is better managed if it is splinted to reduce movement.
 - C. Patients with major arterial bleeding can bleed to death in as little as two or three minutes. It is important to control external bleeding before the patient experiences shock.
 - D. When a tourniquet is applied to an isolated wound on a patient that does not meet MAP criteria, consult with the base station hospital for direction regarding patient destination.
 - E. Any patient with a tourniquet applied should be considered to have a time dependent injury, and should be transported C/3 to the appropriate hospital.
 - F. Hemostatic gauze can be used prior to, or after, the use of tourniquets in managing severe limb hemorrhage.
 - G. Tourniquets can be safely applied for at least 2 hours without causing irreversible, limb-threatening ischemia. In some cases, tourniquets have been applied for as long as four hours without causing irreversible limb ischemia.
 - H. Most patients who require a tourniquet to manage bleeding should be transported to a trauma center.
 - I. Tourniquets need to be accounted for on all patient hand-offs, and in all prehospital documentation. It is critical that the time of tourniquet application be accurately communicated to all care providers.
 - J. Pressure dressings, tourniquets and hemostatic gauze should be reevaluated every time there is a change in the patient's status, or the patient is moved.