M5 CEREBROVASCULAR ACCIDENT

The brain requires constant blood flow to maintain proper function. Any interruption or impairment in cerebral blood flow results in impaired cerebral function. In approximately two thirds of patients, impaired cerebral blood flow is due to occlusion of the vascular supply to the brain. The remaining one third of patients have impaired blood flow due to hemorrhage in the brain.

Impaired cerebral blood flow can be transient, resulting in a transient ischemic attack (TIA), or be permanent, resulting in a cerebrovascular accident (CVA – "stroke").

Patients with impaired cerebral blood flow may benefit from early recognition and rapid, timely treatment.

EMS personnel must ensure that there are no unnecessary delays in assessment, treatment and transport of patients with impaired cerebral function.

GENERAL

- personal protective equipment should be utilized as required
- body substance isolation techniques should be utilized as required
- primary survey
- obtain and record pertinent current and past medical history
    - obtain information related to the neurologic symptoms
        - onset (exact time of onset is important)
        - what parts of body are affected
        - duration of symptoms (if symptoms have resolved)
        - headache
        - seizure-like activity
        - incontinence
    - obtain pertinent past medical history
        - smoking
        - cholesterol status
        - diabetes mellitus
        - angina, myocardial infarction, coronary artery bypass surgery
        - prior episode of similar symptoms
        - other risk factors for cerebrovascular disease
        - family history of cerebrovascular disease
    - record any medication(s) taken by the patient, and their effects

    → question family members and those with patient to obtain as much collateral information as possible

- administer high concentration oxygen by non-rebreathe mask
- monitor the patient closely for evidence of vomiting or regurgitation of stomach contents
- be prepared to support respiratory and circulatory systems
- do not administer anything by mouth (unless specifically required as part of treatment)
- reassure the patient
- do not allow the patient to exert him/herself - e.g. walking, standing unassisted to transfer to the stretcher
- load and go should be immediately initiated for any of the following
  - unstable vital signs
  - airway compromise
  - significant dyspnea or respiratory distress
  - hemodynamic instability
  - maintain high concentration oxygen delivery to the patient
    - assist ventilations if required
  - load and go should be initiated when indicated
    - on scene times should be kept to a minimum
    - treat other life-threatening conditions en route
  - transport the patient to the nearest appropriate health care facility
    - notify the receiving health care facility of the patient's status as soon as possible
    - position the patient as outlined below
    - monitor and treat the patient en route
    - additional surveys and treatments should be conducted en route
  - document all actions including the decision to initiate load and go
  - report all findings to the receiving facility staff, and document on the patient care report
- secondary survey
  - obtain a blood glucose reading (if within scope of practice) and treat if indicated (see Diabetic Emergencies Guideline)
    → do <u>not</u> administer glucose or related agents unless hypoglycemia is documented by glucometer
  - protect affected limbs from injury
  - carefully assess for evidence of weakness or paralysis
    - compare hand grips and pedal strength bilaterally
    - observe for facial asymmetry
  - assess for evidence of incontinence

Patient Positioning

- if conscious
  - supine
  - head and shoulders elevated approximately 30^0, if possible and injuries permit
- if unconscious
  - position in recovery position towards paralyzed side with head and shoulders slightly elevated, if possible and injuries permit

- if not done so already, initiate transport to the nearest appropriate health care facility
  - notify the receiving facility staff of the patient's status

- repeat vital signs and assessment of level of consciousness at regular intervals (5-15 mins.) or when there is a change in the patient's status

- be prepared to manage oral secretions

- report initial assessments and any changes in the patient's status to the staff at the receiving health care facility

NOTE

- patients suffering from an acute impairment of cerebral blood flow may benefit from early thrombolytic therapy in specialized centers capable of investigating, treating, and rehabilitating these patients
  - on scene time should be kept to a minimum and transport initiated as early as possible to the nearest appropriate health care facility

- patients with impaired cerebral blood flow may also have sustained injuries
  - ensure patients have been completely and thoroughly assessed for traumatic injury

- talk to the patient and keep them informed
  - patients may be unable to speak, but they are often aware of their surroundings
    - explain procedures and treatment to them, and reassure them to the extent possible

- several EMS scoring systems have been developed in an attempt for EMS personnel to identify patients suffering from impaired cerebral blood flow
  - the most commonly used scoring system is the **Cincinnati Prehospital Stroke Scale**
    - → 3 factors are quickly assessed (1 minute or less)
      - facial droop – have the patient show teeth or smile
        normal response: both sides of face move equally
        abnormal response: one side of face does not move as well as the other side
      - arm drift – patient closes eyes and holds both arms straight out for 10 seconds
        normal response: both arms move the same or both arms do not move at all
        abnormal response: one arm does not move
        or one arm drifts down compared with the other
      - abnormal speech – have the patient say "you can't teach an old dog new tricks"
        normal response: patient uses correct words with no slurring
        abnormal response: patient slurs words, uses the wrong words, or is unable to speak
    - → if any 1 of these 3 signs is abnormal, the patient's cerebral blood flow is likely compromised

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