

Cerebrovascular Accident (CVA, “Stroke”) Standard

In situations involving a patient with a cerebrovascular accident (CVA, “Stroke”), the paramedic shall:

General Directive

1. consider other potentially serious conditions that may mimic a stroke, such as,
 - a. drug ingestion (*e.g.* cocaine),
 - b. hypoglycemia,
 - c. severe hypertension, hypertensive emergency, or
 - d. central nervous system (CNS) infection (*e.g.* meningitis);
2. perform, at a minimum, a secondary survey to assess,
 - a. head/neck, for,
 - i. facial symmetry,
 - ii. pupillary size, equality, and reactivity,
 - iii. abnormal speech, and
 - iv. presence of stiff neck,
 - b. central nervous system, for,
 - i. abnormal motor function, *e.g.* hand grip strength, arm/leg movement/drift, and
 - ii. sensory loss, and
 - c. for incontinence of urine/stool;
3. ensure adequate support for the patient’s body/limbs during patient movement and place extra padding and support beneath affected limbs;
4. prepare for potential problems, including,
 - a. possible airway obstruction (if loss of tongue control, gag reflex),
 - b. decreasing level of consciousness,
 - c. seizures, and
 - d. agitation, confusion, or combativeness; and
5. ventilate the patient if patient is apneic or respirations are inadequate,
 - a. if ETCO₂ monitoring is available,
 - i. attempt to maintain ETCO₂ values of 35-45 mmHg,
 - ii. notwithstanding paragraph 5(a)(i) above, if signs of cerebral herniation are present after measures to address hypoxemia and hypotension, hyperventilate the patient to attempt to maintain ETCO₂ values of 30-35 mmHg. Signs of cerebral herniation include a deteriorating GCS <9 with any of the following:
 1. dilated and unreactive pupils,
 2. asymmetric pupillary response, or

3. a motor response that shows either unilateral or bilateral decorticate or decerebrate posturing, or
 - b. if ETCO₂ monitoring is unavailable, and measures to address hypoxemia and hypotension have been taken, and the patient shows signs of cerebral herniation as per paragraph 5(a)(ii) above, hyperventilate the patient as follows:
 - i. Adult: approximately 20 breaths per minute,
 - ii. Child: approximately 25 breaths per minute,
 - iii. Infant <1 year old: approximately 30 breaths per minute.

Acute Stroke Bypass Protocol

1. assess the patient to determine if he/she has one or more of the symptoms consistent with the onset of an acute stroke, as follows:
 - a. Inappropriate words or mute,
 - b. Slurred speech,
 - c. Unilateral arm weakness or drift,
 - d. Unilateral facial droop, or
 - e. Unilateral leg weakness or drift;
2. if the patient meets the criteria listed in paragraph 1 of the *Acute Stroke Bypass Protocol* above, determine if the patient can be transported to a Designated Stroke Centre* within 6 hours of a clearly determined time of symptom onset or time the patient was last seen in his/her usual state of health;
3. if the patient meets the criteria listed in paragraph 1 and paragraph 2 above, assess the patient to determine if he/she has any of the following contraindications:
 - a. CTAS 1 and/or an uncorrected airway, breathing or circulation issue
 - b. Stroke symptoms resolved prior to paramedic arrival or assessment
 - c. Blood Glucose Level <3 mmol/L**
 - d. Seizure at the onset of symptoms or that is observed by the paramedic
 - e. Glasgow Coma Scale <10
 - f. Terminally ill or is in palliative care
 - g. Duration of transport to the Designated Stroke Centre will exceed two hours;
4. if the patient does not meet any of the contraindications listed in paragraph 3 above, perform a secondary screen for a Large Vessel Occlusion (LVO) stroke using the Los Angeles Motor Scale (LAMS);
5. inform the CACC/ACS of the LAMS score to assist in the determination of the closest or most appropriate*** Designated Stroke Centre; and
6. if transport has been initiated to a Designated Stroke Centre and the patient's symptoms improve significantly or resolve during transport, continue transport to the Designated Stroke Centre.

***Note: A Designated Stroke Centre includes a Regional Stroke Centre, District Stroke Centre or a Telestroke Centre regardless of EVT capability.**

****Note: If symptoms persist after correction of blood glucose level, the patient is not contraindicated as per paragraph 3(c) above.**

*****Note: Most appropriate refers to a Designated Stroke Centre as defined by a PPS.**