Advanced Life Support Patient Care Standards Version 4.0 Refresher

ROSC Medical Directive Summary of Changes

The following is intended to provide you with a summary that reflects the changes to the ALS PCS v4.0. Please refer to the following additional resources for further clarification as needed:

- **Advanced Care Life Support Patient Care Standards v4.0**
  Link: www.lhsc.on.ca/About_Us/Base_Hospital_Program/Medical_Directives/index.htm

- **ROSC Refresher Podcast**
  Link: https://youtu.be/MdxTVx9XO-E

- **SWORBHP – 2016-2017 Mandatory – PCP/ACP in the Paramedic Portal - Online Training**
  Link: www.paramedicportalontario.ca

What has changed?

- Therapeutic hypothermia has been removed
- Optimizing ventilation and oxygenation has changed from titrating oxygenation >94% to titrating oxygenation between 94-98%
- ETCO2 (if available) target has changed from 35-45 mmHg to 30-40 mmHg, to avoid hyperventilation
- ETCO2 monitoring is mandatory with ETT or supraglottic airway insertion (if available)

Why has it changed?

- **Why has therapeutic hypothermia been removed?**

  New recommendation is against the routine prehospital cooling of patients after ROSC with rapid infusion of cold intravenous fluid ***(Class III: No Benefit, LOE A)***

  LAST UPDATED: Oct 2015

  - During the past few years, infusion of cold intravenous fluids has become a popular prehospital intervention that may influence the system of care. Initiation of a temperature management strategy en route to the hospital may increase the probability that temperature management continues during the hospitalization. Adverse effects of the rapid infusion of cold intravenous fluids in the prehospital setting must be weighed against this potential positive effect of earlier intervention. Current evidence indicates that there is no

direct patient benefit from these interventions and that the intravenous fluid administration in the prehospital setting may have some potential harm, albeit with no increase in overall mortality. Whether different methods or devices for temperature control outside of the hospital are beneficial is unknown.

- **What is the most current AHA guideline for oxygenation to avoid hyper and hypo ventilation?**

  Maintaining the $PaCO_2$ within a normal physiological range, taking into account any temperature correction, may be reasonable (Class IIb, LOE B-NR).

  LAST UPDATED: Oct 2015 Previous Versions

  - Normocarbia (end-tidal CO_2 30–40 mmHg or $PaCO_2$ 35– 45 mmHg) may be a reasonable goal unless patient factors prompt more individualized treatment. Other $PaCO_2$ targets may be tolerated for specific patients. For example, a higher $PaCO_2$ may be permissible in patients with acute lung injury or high airway pressures. Likewise, mild hypocapnia might be useful as a temporizing measure when treating cerebral edema, but hyperventilation might cause cerebral vasoconstriction. The need to avoid potential hyperventilation-induced cerebral vasoconstriction needs to be weighed against the correction of metabolic acidosis by hyperventilation.

  - ***To avoid hypoxia in adults with ROSC after cardiac arrest, it is reasonable to use the highest available oxygen concentration until the arterial oxyhemoglobin saturation or the partial pressure of arterial oxygen can be measured (Class IIa, LOE C-EO).***

  LAST UPDATED: Oct 2015

  - When resources are available to titrate the FiO_2 and to monitor oxyhemoglobin saturation, it is reasonable to decrease the FiO_2 when oxyhemoglobin saturation is 100%, provided the oxyhemoglobin saturation can be maintained at 94% or greater (Class IIa, LOE C-LD).

  LAST UPDATED: Oct 2015 Previous Versions

  - Shortly after ROSC, patients may have peripheral vasoconstriction that makes measurement of oxyhemoglobin saturation by pulse oximetry difficult or unreliable. In those situations, arterial blood sampling may be required before titration of FiO_2. Attempts to limit the concentration of inspired oxygen rely on having proper equipment available. For example, oxygen blenders may not be available immediately after return of pulses, and these recommendations remind providers using bag-valve-mask devices.

How does it affect paramedic practice?

- Not a large impact on paramedic practice
- Utilizing $Sp0_2$ and $ETCO_2$ to ensure quality oxygenation/ventilation is imperative
- Continue considering fluid bolus for ROSC patients who present hypotensive: <90 mmHg: 10 ml/kg, re-evaluate q 100 ml between 2-11 years old and q 250 ml for patient 12 and older, with a maximum volume of 1000 ml.

- ACP: no change to dopamine in hypotensive patients >8 y/o: 5 mcg/kg/min titrated by 5 mcg/kg/min q 5 min, max 20 mcg/kg/min. Please remember to review the dopamine strength you are working with: Single (800 mcg/ml) or Double (1600 mcg/ml).
- Continue considering 12 Lead ECG acquisition and interpretation in all ROSC patients
- **PCP/ACP:**
    - The changes include both PCP and ACP Medical Directives
    - **UPLOAD CARDIAC MONITOR INFORMATION**

REMINDER THAT THE INFORCE DATE IS JULY 17, 2017