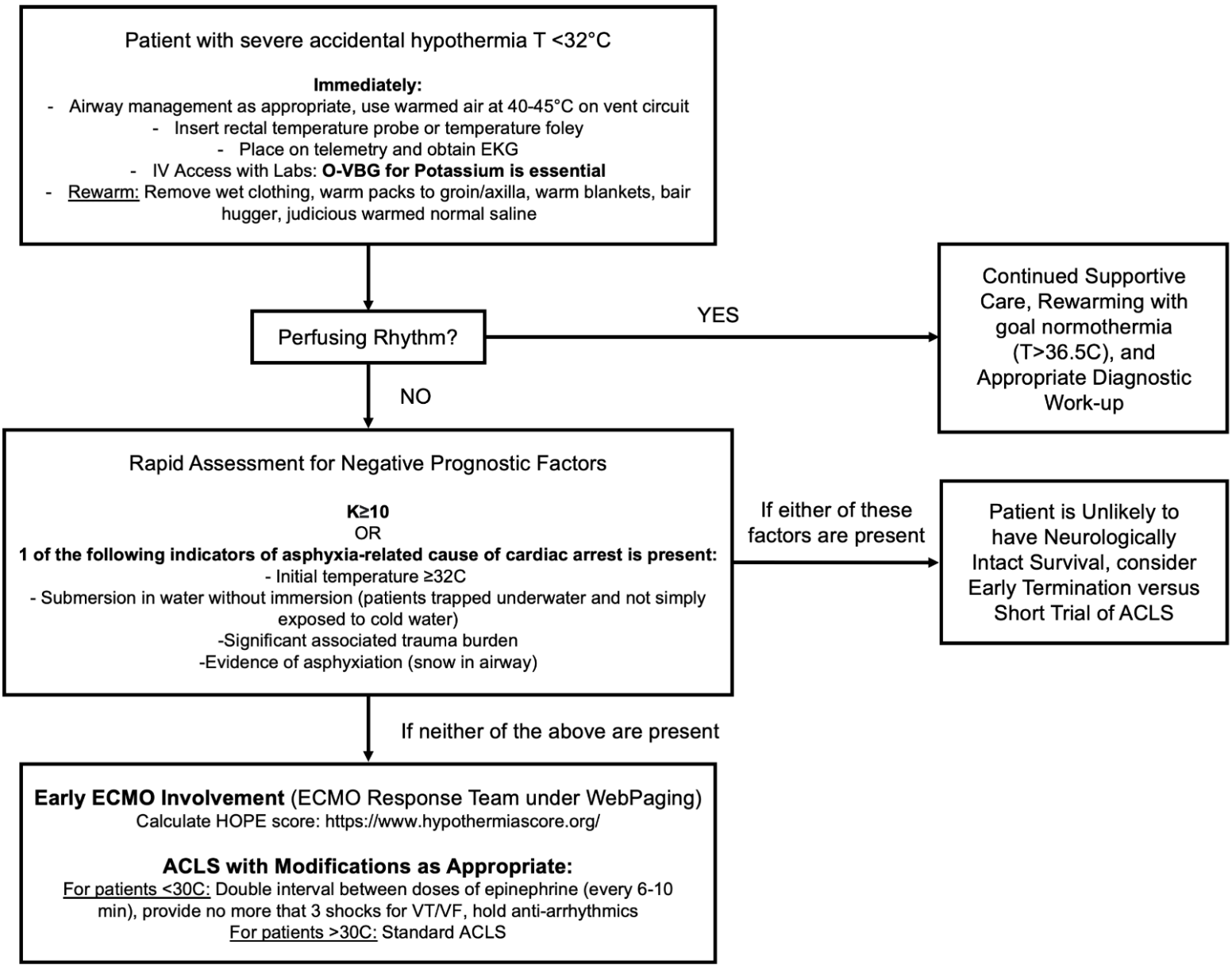
Patient with severe accidental hypothermia T <32°C
Immediately:
- Airway management as appropriate, use warmed air at 40-45°C on vent circuit
- Insert rectal temperature probe or temperature foley
- Place on telemetry and obtain EKG
- IV Access with Labs: O-VBG for Potassium is essential
- Rewarm: Remove wet clothing, warm packs to groin/axilla, warm blankets, bair hugger, judicious warmed normal saline
Perfusing Rhythm?
YES
Continued Supportive Care, Rewarming with goal normothermia (T>36.5C), and Appropriate Diagnostic Work-up
NO
Rapid Assessment for Negative Prognostic Factors
K≥10
OR
1 of the following indicators of asphyxia-related cause of cardiac arrest is present:
- Initial temperature ≥32C
- Submersion in water without immersion (patients trapped underwater and not simply exposed to cold water)
-Significant associated trauma burden
-Evidence of asphyxiation (snow in airway)
If either of these factors are present
Patient is Unlikely to have Neurologically Intact Survival, consider Early Termination versus Short Trial of ACLS
If neither of the above are present
Early ECMO Involvement (ECMO Response Team under WebPaging)
Calculate HOPE score: https://www.hypothermiascore.org/
ACLS with Modifications as Appropriate:
For patients <30C: Double interval between doses of epinephrine (every 6-10 min), provide no more that 3 shocks for VT/VF, hold anti-arrhythmics
For patients >30C: Standard ACLS

Definitions: This protocol is designed for SMH ED patients >18 years of age in which there is a strong clinical suspicion for moderate to severe accidental hypothermia (HT II-IV)

Stage	Clinical Features	Temperature (C)
HT I	Clear consciousness with shivering	35-32
HT II	Impaired consciousness without shivering	32-28
HT III	Unconsciousness	28-24
HT IV	Apparent death	24-13
HT IV	Death due to irreversible hypothermia	<13

Swiss Staging Model for Hypothermia[1]

For **all** patients:

-Obtain IV access, place on telemetry, provide oxygen as needed
-Establish continuous temperature monitoring via rectal temperature probe or temperature sensing foley catheter
-Lab tests/diagnostics: EKG, OVBG (for rapid assessment of K), CBC, BMP, TSH, Serum/Urine Tox Panel. Consider CT head
-Minimize continued heat loss and begin passive rewarming by by removing wet clothing, applying warm packs to axilla/groin, applying warm blankets

For patients **with** a perfusing rhythm:

-Monitor mental status carefully to assess need for airway intervention
-Continue monitoring on telemetry for signs of intermittent arrhythmia
-Initiate active rewarming with use of bair hugger, arctic sun, judicious use of warmed IVF (500cc-1L NS at 38-42°C).
-If patient is intubated use warm/humidified air at 40-45°C in the ventilator circuit

For patients **without** a perfusing rhythm:

-Initial assessment: Initial assessment should focus on rapid identification of hypothermia and identification on alternative etiologies of arrest that would preclude prolonged resuscitation or ECPR/ECAR (asphyxiation, trauma)
-Airway: standard airway management with a focus on adequate preoxygenation is key
-ACLS:

-Perform continuous, high quality chest compressions. Consider use of Lucas device.
-For patients **<30C:** Double interval between doses of epinephrine (every 6-10 min), provide no more that 3 shocks for VT/VF, hold anti-arrhythmics
-For patients **>30C:** use standard ACLS guidelines for use of epinephrine, defibrillation, and use of anti-arrhythmics

-**ECMO:**

-Engage ECMO services early in the course of resuscitation (#)
-Use HOPE score to aid with prognostication: https://www.hypothermiascore.org/

-Termination of resuscitation

-Per provider discretion

-If initial potassium is >10, the patient highly unlikely to have neurologically intact survival

-The following are indicators that the patient's cardiac arrest is likely secondary to asphyxia as well as hypothermia and therefore the patient is a poor candidate for ECMO/prolonged resuscitation:

- Initial temperature ≥32C
- Submersion in water without immersion (patients trapped underwater and not simply exposed to cold water)
-Significant associated trauma burden
-Evidence of asphyxiation (i.e. snow in airway)

Select References:

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3. Darocha, T., Kosiński, S., Jarosz, A., Sobczyk, D., Gałązkowski, R., Piątek, J., ... & Drwiła, R. (2016). The chain of survival in hypothermic circulatory arrest: encouraging preliminary results when using early identification, risk stratification and extracorporeal rewarming. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, *24*(1), 1-5
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