Dane County EMS Newsletter

October, 2023

Upcoming Events and Training

11/15 - 6pm, UW Health Monthly Training: Special Burns/Frostbite
Register at uwhealth.org/EEN23

11/16, 6pm-8pm - SSM Health Monthly Training: Communication with Dr. Lybeck
Register at https://events.r20.constantcontact.com/register/eventReg?oeidk=a07ek23e8o9bb415c0c&oseq=&c=&ch=

12/7, 8am-4pm - SCRTAC: Trauma Care Across the Continuum
Located at Epic Campus: Verona, WI. Includes breakfast, beverages, lunch & snack.
Cost is $50 per person to attend.
For more information, go here.
Register at https://www.scrtac.org/product/trauma-care-across-the-continuum-2023/

Updates to Epi Use in the Cardiac Arrest Protocol

DCEMS Medical Advisors plan to review relevant data and guidelines, including other system protocols, regarding utilization of epi in cardiac arrest during November, with the goal of pushing out recommended updates to protocol first quarter of 2024.

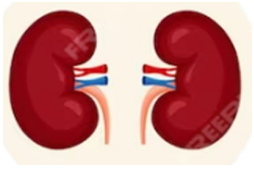
We want to hear from you! Share your input on epi use in the Cardiac Arrest Protocol using this link.

October Viz Quiz

Which one of these organs in our body is responsible for production of epinephrine?

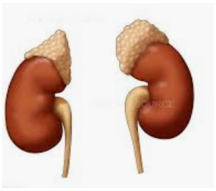
A. Thyroid

B. Kidneys



C. Brain

D. Adrenal Glands



E. Heart

Submit your answers at https://www.surveymonkey.com/r/SW9LYLL for the chance to win a prize!

August Viz Quiz Follow Up

Answer: B, C, D

It is important to be able to differentiate between heat-related illnesses in order to determine the level of severity. An individual experiencing heat stroke may present with a marked alteration in Level of Consciousness; diaphoretic OR dry, hot, red skin; and an extremely high temperature of > 104F. As the body temperature rises above 104F, sweating generally disappears. Young children or older adults are more prone to heat emergencies due to their inability to easily self-extricate from hot environments.

Treatment for heat-stroke includes applying oxygen and rapid cooling with cold packs, sponge with cool water, and a fan. If possible, stay on scene to cool patient before beginning transport. Notify receiving facility and contact Medical Control as necessary.

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Case Study

Case: Paged for a 9E, 72-year-old male, witnessed arrest by his son after he complained of worsening chest pain while they were out raking leaves. Bystander initiated CPR with assistance of the telecommunicator. Upon EMS arrival to scene, crew found him to be in asystole. An IO was placed and initial dose of epinephrine was given. The crew continued to manage the patient according to the cardiac arrest protocol utilizing high performance CPR. Unfortunately, after 20 minutes of ongoing resuscitation and advanced airway placement, the patient's end tidal was noted to be 8 and there was no further response to any interventions. Online Medical Control was contacted, and efforts were discontinued after discussion with the son.

- EMS-treated out-of-hospital cardiac arrest (OHCA) affects more than 250,000 Americans each year and based on data submitted to CARES, 9.3% of those individuals survive to hospital discharge with about 80% of those patients having a positive neurological outcome. (CARES 2022 Annual Report)
- It has been previously established that quality of chest compressions, uninterrupted continuous compressions, and early defibrillation in V-fib/V-tach arrests increase the likelihood of achieving ROSC and improve neurological outcomes. However, other interventions we routinely perform in cardiac arrest resuscitation, such as administration of epinephrine, are not backed up by strong evidence.

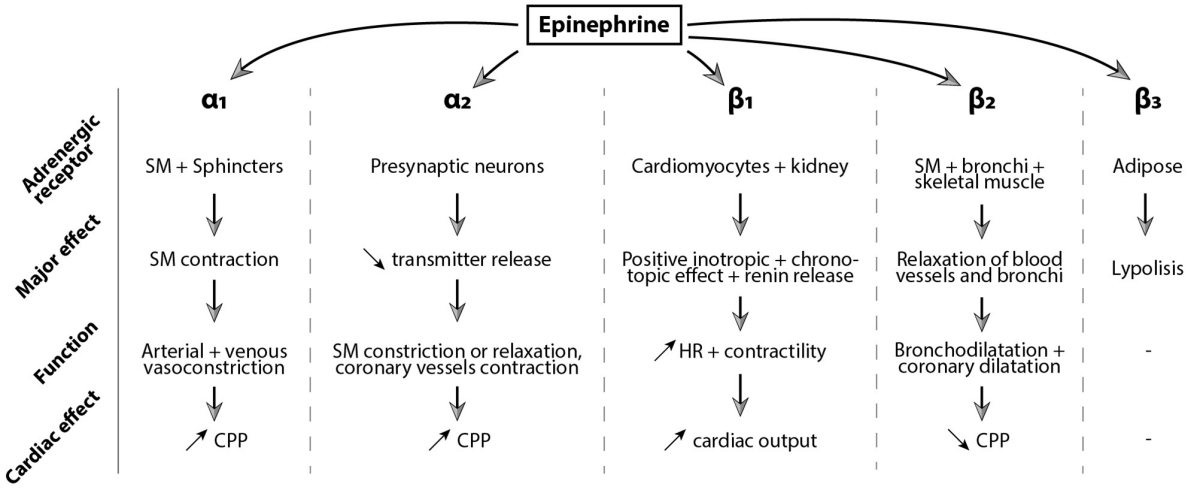
Epinephrine - Pharmacology and Rationale

The key purpose of administration of epinephrine in cardiac arrest is to increase likelihood of ROSC by increasing coronary perfusion pressure (CPP). With exogenous administration of epinephrine, α and ß adrenoreceptors are activated, causing vasoconstriction, increasing blood pressure and leading to higher coronary perfusion pressure and cerebral perfusion pressure, thus increasing myocardial perfusion. (see image below outlining effects of epinephrine).

However, epinephrine is not without its adverse effects. The chronotropy and inotropy also increases the myocardial oxygen demand, which can lead to ventricular arrhythmias. The vasoconstrictive effects on microcirculation can also lead to complete occlusion and end organ ischemia.

Multiple studies have demonstrated that administration of epinephrine is associated with increased rates of ROSC and perhaps short-term survival but does not result in higher rates of survival to hospital discharge nor increased neurological outcomes.

•Fisk CA, Olsufka M, Yin L, et al. Lower Dose Epinephrine Administration and Out Of Hospital Cardiac Arrest Outcomes. Resuscitation. 2018;124:43-48.
•Hagihara A, Hasegawa M, Abe T, et al. Prehospital Epinephrine Use and Survival Among Patients with Out-of-Hospital Cardiac Arrest (OHCA). JAMA. 2012;307(11):1161-1168.
•Jacobs I, Finna J, Jelinek, GA, et al. Effect of Adrenaline on Survival in Out Of Hospital Cardiac Arrest: A randomised double blind placebo controlled trial. Resuscitation. 2011; 82:1138-1143.
•Kempton H, Vlok R, Thang C, et al. Standard Dose Epinephrine versus Placebo in Out of Hospital Cardiac Arrest: A Systematic Review and Meta Analysis. Am J Emerg Med. 2019; 37(3):511-517.
•Olasveengen TM, Wik L, Sunde K, et al. Outcome When Adrenaline (Epinephrine) Was Actually Given Vs. Not Given - post hoc analysis of a randomized clinical trial. Resuscitation. 2012; 83:327-332.
•Perkins GD, Ji C, Deakin CD, et al. A Randomized Trial of Epinephrine in Out Of Hospital Cardiac Arrest. N Engl J Med. 2018;379(8):711-721



Thank you for reading! For questions, comments, or feedback you can contact the DCEMS office at dcems@countyofdane.com or by calling 608-335-8228. All other staff contact information can be found at em.countyofdane.com/EMS/contactus.