

Heat Stroke

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Pediatrics

Question 1

A 14 year old tennis player collapsed on the outdoor court after the final of a five day tournament in Miami in mid-August. She was taken to the ER by paramedics, who reported that her lips and oral mucosa were dry and her skin was very hot when they began resuscitating her at the scene. She vomited twice on the way to hospital, and when she regained consciousness she was groaning and mumbling incoherently. Which one of the following findings would indicate that she has had heat stroke?

- a) core temperature of 105F
- b) blood pressure 195/100
- c) confusion, irritability
- d) profuse sweating

Answer

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- b) blood pressure 195/100
- c) confusion, irritability
- d) profuse sweating

Explanation

HEAT STROKE = Core temperature $> 104^{\circ}\text{F}$ (40°C) in a patient who has been exposed to high temperatures (exertional or nonexertional), and who has shown neurological dysfunction

Dehydration is a common feature, and worsens the progression of the condition – often \downarrow sweating

Pt often presents in shock (with BP \downarrow)

Heat exposure with confusion but temp $100.4\text{-}104^{\circ}\text{F}$ ($38\text{-}40^{\circ}\text{C}$) = heat exhaustion

Question 2

- For the previous patient with a heat-related illness, it is critical to quickly lower body temperature to below:
 - a) 102.2° F (39° C)
 - b) 103.2° F (39.5° C)
 - c) 104° F (40° C)
 - d) 104.9° F (40.5° C)

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Explanation

- Treatment of heat stroke involves
 1. Removing the patient from the hot circumstances
 2. Rapid cooling to below 104 °F(40 °C) to prevent cellular injury- ice bath, fans
 3. Supportive therapy, including aggressive rehydration – IV, with cooled crystalloids and colloids as indicated; begin PO if IV not immediately available and pt conscious

Keep them cool and hydrated!

Best to prevent heat illness by training sports and outdoor supervisors of children to

- ✓ avoid play in excessively hot, humid conditions
- ✓ hydrate frequently during heat-exposed activity-
let kids drink sugary and salty drinks to make them drink more
- ✓ monitor carefully for the effects and subtle signs of heat illness- nausea, vomiting, excessive fatigue, confusion, muscle cramps
- ✓ Dress kids in light, breathable, light coloured fabric

References

1. Grubenhoff, du Ford and Roosvelt: Heat-related illness. Clinical Pediatric Emergency Medicine 8: 59-64
2. Jardine D. Heat Illness and heat stroke. Pediatrics in Review Vol 28 No 7 July 2007; p248-258