ARRHYTHMIAS AND CARDIOGENIC SHOCK AS A PRESENTATION OF HYPERTERMIA

Poster Contributions
Poster Hall B1
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Background: The incidence of exertional heat illness is rising in the United States. It is a rare cause of arrhythmias, direct myocardial injury and distributive shock, and carries a high rate of mortality if not treated promptly.

Case: A 45 years-old gentleman was admitted for altered mental status after he was found supine on a sidewalk. He had last been seen normal one hour prior, briskly walking to deliver mail on his usual route. He was hypotensive and in a wide-complex tachycardia. He was warm, flushed, with no signs of trauma; cardiovascular exam was remarkable for distant tachycardic heart sounds at a rate of 120, no murmurs, and bilateral pulmonary edema.

Decision Making: He was diagnosed with polymorphic ventricular tachycardia, but did not respond to repeated defibrillation or administration of amiodarone and lidocaine. Empiric treatment for hyperkalemia was therefore initiated; QRS width narrowed on EKG, and sinus tachycardia was recognized. An echocardiogram showed significantly depressed biventricular function. Laboratory results were significant for potassium 6.7mEq/L and pH 7.07, concerning for rapid rhabdomyolysis. Neuroleptic malignant syndrome was considered; he did not have muscle rigidity however so dantrolene was not administered. His temperature was rechecked, and found to be 110°F rectally. Prompt cooling using external pads was initiated. Hemodialysis was started to treat the hyperkalemia and acidosis; his EKG normalized, but he remained on high doses of vaspressors and developed disseminated intravascular coagulopathy. Thyroid storm, pheochromocytoma, encephalitis, hypothalamic stroke, drug ingestion were excluded by laboratory testing and imaging. The clinical diagnosis of malignant hyperthermia due to dehydration and exercise in hot ambient temperature (95°F) was made. He had progressive cerebral edema and supportive measures were withdrawn 24 hours after admission.

Conclusion: This case demonstrates the importance of importance of a high degree of suspicion for hyperthermia as a cause of combined cardiogenic and distributive shock. Rapid treatment is necessary as protein denaturation and neurologic damage happen early in the course of disease.