

What is Sudden Cardiac Arrest?

Definition, Epidemiology, and Risk Factors

Introduction to SCA

- Sudden cardiac arrest (SCA) is a **major public health problem**.
- Leading cause of death outside the hospital setting.
- Often confused with a heart attack, but they are distinct conditions.

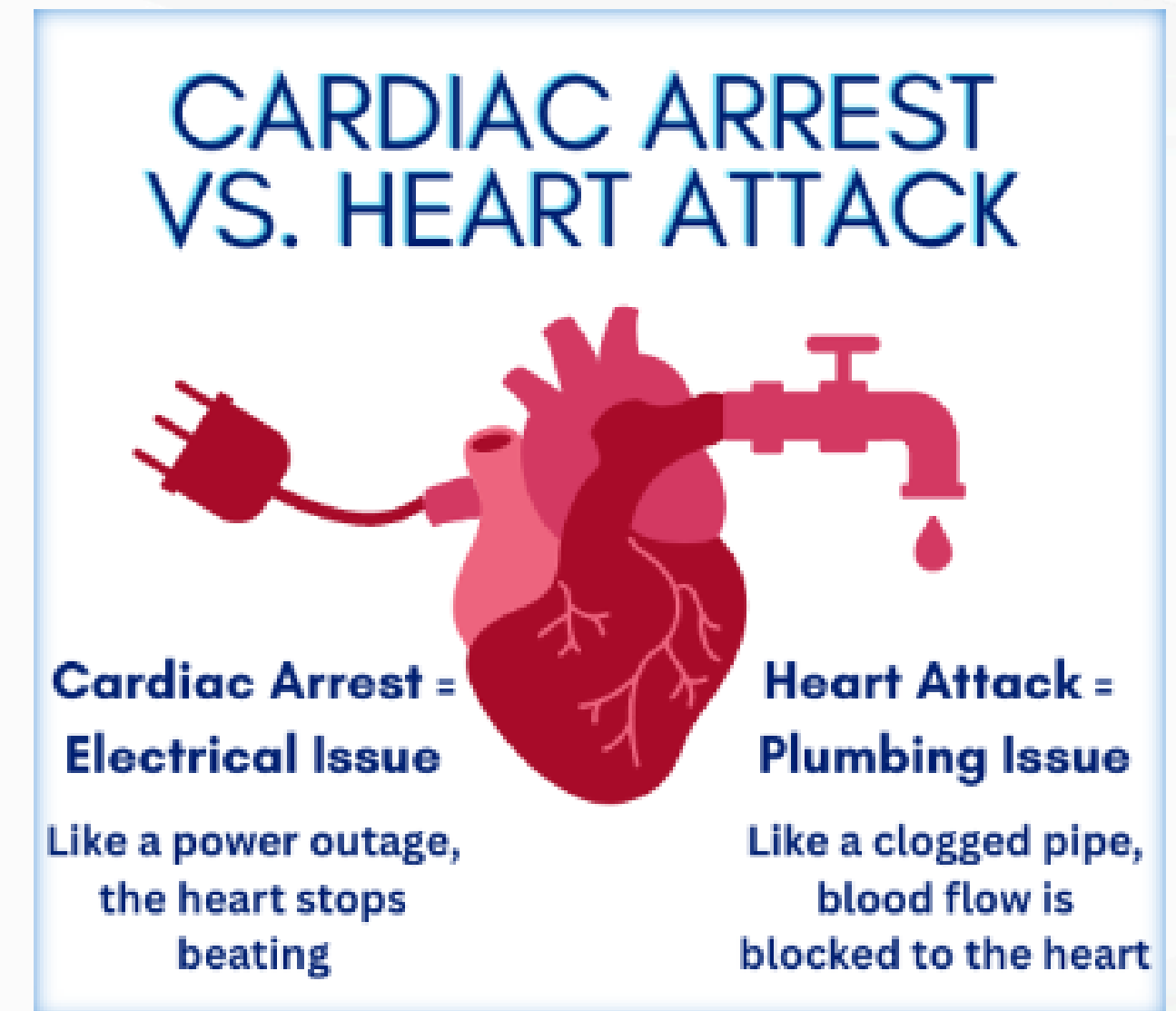


Definition of SCA

- Sudden, unexpected loss of heart function, breathing, and consciousness.
- Caused by **electrical disturbances** → the heart stops pumping blood.
- SCA is a **medical emergency** → requires immediate CPR and defibrillation.

SCA is NOT a Heart Attack

- **SCA:** Electrical problem; heart suddenly stops.
- **Heart Attack (Myocardial Infarction):** Circulation problem; blockage reduces blood flow to the heart muscle.
- A heart attack can trigger SCA, but they are **not** the same.



- SCA accounts for **~15–20%** of all deaths worldwide.
- Out-of-hospital cardiac arrest (OHCA) survival: **<10%**
- **~356,000** OHCAs occur annually in the U.S. (AHA 2023)

Epidemiology: U.S. Data



- Leading cause of death **outside hospitals**.
- Occurs across all age groups, but is highest in adults **>50 years old**.
- **70%** of OHCA's occur at home.
- Bystander **CPR and AED** use improve survival.

Risk Factors: Cardiac Conditions



- **Coronary artery disease (most common underlying cause)**
- Previous heart attack
- Heart failure
- Arrhythmias (e.g., ventricular fibrillation, Long QT syndrome)
- Congenital heart disease (CHD)

Risk Factors: Non-Cardiac & Lifestyle



- Family history of SCA or sudden cardiac death (SCD)
- Obesity, diabetes, hypertension, or smoking
- Excessive alcohol or drug use
- Intense physical exertion in predisposed individuals

High-Risk Populations



- Athletes with a genetic predisposition (e.g., Catecholaminergic polymorphic ventricular tachycardia)
- Individuals with reduced heart muscle function (e.g., Cardiac ischemia, prior heart attack)
- Individuals with structural abnormalities:
 - Cardiomyopathies (e.g., Hypertrophic, Obstructive, Dilated)
 - Arrhythmogenic Right Ventricular Dysplasia
 - Congenital Heart Defects
 - Myocarditis
- Individuals with infiltrative disease (e.g., Sarcoidosis)

Prevention & Early Response

- **Screening** for high-risk individuals
- **Lifestyle modifications** (e.g., diet, exercise, smoking cessation)
- Public access to **Automated External Defibrillators (AEDs)**
- Community **CPR** training



Key Takeaways

- SCA = **sudden electrical failure** of the heart, not the same as a heart attack.
- Major global health burden, **high mortality outside hospitals**
- Strongly linked to cardiac and lifestyle risk factors
- Early recognition and **CPR/AED training** use save lives

References

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