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CARDIAC ARREST MANAGEMENT ALGORITHM ACCORDING TO THE 2025 AMERICAN HEART ASSOCIATION UPDATE

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Background:
Cardiac arrest remains one of the most critical medical emergencies and is associated with high mortality despite advances in resuscitation medicine. Early recognition, immediate initiation of high-quality cardiopulmonary resuscitation (CPR), rapid defibrillation when indicated, and effective advanced life support (ALS) are essential components of successful resuscitation. A standardized and clearly structured cardiac arrest management algorithm facilitates rapid decision-making and improves coordination among emergency medical teams.

Aim:
To present a structured cardiac arrest management algorithm based on contemporary principles of basic life support (BLS), advanced life support (ALS), and evidence-based resuscitation practice, with emphasis on early interventions and effective team coordination.

Methods:
A narrative analysis of contemporary international resuscitation guidelines and evidence-based recommendations was performed. The proposed algorithm integrates systematic assessment of unresponsiveness and abnormal breathing, immediate activation of emergency response, initiation of high-quality CPR, rhythm assessment, early defibrillation for shockable rhythms, intravenous or intraosseous access, administration of recommended pharmacological therapy, airway and ventilation management, and identification and treatment of reversible causes of cardiac arrest. Particular attention was given to minimizing interruptions in chest compressions and establishing clear role allocation within the resuscitation team.

Results:
The structured algorithm provides a sequential approach to cardiac arrest management and supports rapid identification of shockable and non-shockable rhythms. Integration of early CPR, timely defibrillation, effective airway and ventilation management, appropriate medication administration, and systematic assessment of reversible causes may improve the efficiency and

quality of resuscitation. Standardized team communication and predefined clinical roles may further reduce delays and procedural errors during high-stress resuscitation situations.

Conclusion:

A standardized cardiac arrest management algorithm is an essential component of effective emergency and prehospital care. Its implementation, combined with regular simulation-based training and continuous assessment of resuscitation performance, can improve adherence to evidence-based practice, team coordination, and the quality of CPR. Further evaluation of algorithm implementation in real-world emergency medical settings may help identify opportunities for improving cardiac arrest outcomes.

Keywords: Cardiac arrest; Cardiopulmonary resuscitation; Advanced life support; Defibrillation; Emergency medicine