Chapter 1

APPROACH TO THE PATIENTS IN SHOCK

İlker ŞİRİN[1]

Introduction

Shock is a clinically characterized syndrome primarily resulting from inadequate delivery of oxygen and nutrients to tissues and organs, leading to cellular dysfunction. According to a systematic review, approximately 2% of patients presenting to the emergency department are found to have hypotension (SBP (Systolic Blood Pressure)<90 mm/Hg), and 1-2% are in a state of shock (1).

In the approach to a patient in shock, the primary objective should be early recognition and initiation of empirical treatment. While investigating the underlying cause is essential, simultaneous patient stabilization is imperative. Therefore, comprehending the stages of shock is crucial to understand the pathophysiology across all types of shock.

- **Non-progressive Stage:** The stage at which compensatory mechanisms of circulation come into play. Peripheral resistance increases, venous structures constrict, and heart activity intensifies. Coronary and cerebral blood flow are preserved by reflexes.

- **Progressive Stage:** This is the phase where shock continuously worsens, compensatory mechanisms prove inadequate, and a vicious cycle ensues, further exacerbating the shock. During this stage, there is a decrease in cardiac output due to compromised cardiac nourishment, leading to reduced arterial pressure and systemic blood flow. Inadequate tissue perfusion results from diminished cerebral and coronary blood flow. Additionally, intravascular clotting initiates, brain nourishment decreases, causing vascular dilation, and capillary permeability rises, while venous return declines. The outcomes during this phase perpetuate the same cascade, driving the system into a vicious cycle.

- **Irreversible Stage:** This is the stage where high-energy phosphate reserves are depleted, energy sources are entirely consumed, and death occurs.

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For a patient diagnosed with tension pneumothorax, immediate decompression is crucial. A finger thoracostomy should be performed in the fifth intercostal space before the midclavicular line, followed by tube thoracostomy.

In cases where aortic dissection or myocardial rupture has not led to pericardial tamponade, emergency intervention is required. Pericardiocentesis guided by ultrasound should be performed promptly.

In the case of cardiogenic shock due to arrhythmia, while investigating the cause of the arrhythmia, consideration should be given to cardioversion. In the presence of myocardial infarction, antiplatelet and anticoagulant medications should be initiated promptly.

For a patient in shock due to pulmonary embolism, thrombolytic therapy should be considered.

If there is suspicion of adrenal crisis, a condition that should not be forgotten among differential shock diagnoses, intravenous administration of 100 mg hydrocortisone is recommended.

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