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CRITICAL CONDITIONS OF TOXIC AND ALLERGIC GENESIS IN INTENSIVE CARE: DIFFERENTIAL DIAGNOSTICS AND MANAGEMENT OF CARDIORESPIRATORY SYNDROMES

Vakhtangi Mazanashvili[1], Amiran Tutberidze[2], Luiza Gabunia[3], Magda Rurua[4]

[1]Tbilisi State Medical University, Faculty of Medicine, Tbilisi, Georgia
[2]Davit Tvildiani Medical University, Faculty of Medicine, Tbilisi, Georgia
[3]Clinical Pharmacology Department, Tbilisi State Medical University, Tbilisi, Georgia
[4]Anesthesiology, Reanimatology and Toxicology Department of the Tbilisi State Medical University, Tbilisi, Georgia

Introduction: Toxic exposures and severe hypersensitivity reactions may cause life-threatening cardiovascular and respiratory complications requiring prompt recognition, emergency intervention, and intensive care management. Diagnostic challenges are particularly significant when patients present with profound hemodynamic instability, acute respiratory failure, and evidence of myocardial injury.

Objective: To illustrate the diagnostic challenges and intensive care management of severe cardiorespiratory complications associated with toxic and hypersensitivity-related exposures through the analysis of two clinical cases.

Materials and Methods: This descriptive report presents two clinical cases managed at the First University Clinic of Tbilisi State Medical University. The analysis was based on medical records, clinical presentation and progression, laboratory findings, diagnostic imaging, toxicological investigations, and therapeutic interventions.

Results: Case 1: A 43-year-old woman developed acute respiratory failure, severe hypoxemia, arterial hypotension, and frothy oral secretions shortly after applying hair dye. Clinical evaluation revealed pulmonary edema, left ventricular systolic dysfunction with an ejection fraction of 37%, and elevated cardiac troponin levels, indicating myocardial injury. The clinical diagnosis was anaphylactic shock complicated by acute left ventricular dysfunction and pulmonary edema. Following intensive care management, including invasive mechanical ventilation and supportive therapy, the patient's condition improved, and she was subsequently discharged.

Case 2: A 62-year-old man developed profound bradycardia (heart rate: 37 beats/min), hemodynamic instability, and acute respiratory failure following the ingestion of a large quantity of honey. Toxicological testing confirmed the presence of grayanotoxin, supporting the diagnosis of grayanotoxin poisoning. The patient required endotracheal intubation, invasive mechanical ventilation, and hemodynamic support, including atropine and dopamine administration. Coronary angiography revealed no significant coronary artery lesions, while computed tomography excluded pulmonary embolism. Following intensive treatment, the patient's clinical and hemodynamic status progressively improved. He was successfully extubated and discharged in satisfactory condition.

Conclusion: These cases highlight the importance of early recognition of severe toxic and hypersensitivity-related reactions, immediate stabilization of vital functions, and a systematic differential diagnostic approach in patients presenting with acute cardiorespiratory compromise. Integration of exposure history, clinical findings, cardiac biomarkers, imaging studies, and toxicological testing is essential for identifying the underlying etiology, guiding appropriate treatment, and improving clinical outcomes.

Keywords: Anaphylactic shock; Grayanotoxin poisoning; Cardiorespiratory failure; Bradyarrhythmia; Myocardial injury; Emergency medicine; Intensive care.