Non-hospital cardiopulmonary resuscitation in a patient with massive pulmonary embolism: a case report

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Introduction: This report examines various aspects of pulmonary embolism (PE), including causes, risk factors, and diagnostic methods. We aim to present a specific case of massive PE with successful non-hospital cardiopulmonary resuscitation, cardiopulmonary arrest in the emergency room with a successful outcome, repeated episodes of epinephrine use, confirmed deep vein thrombosis in both legs, and heparin-induced thrombocytopenia (HIT). The diagnosis of PE can be challenging because symptoms are non-specific. However, classic symptoms that often occur include chest pain worsened by breathing (39%) and resting dyspnea (50%). Other symptoms, such as cough and hemoptysis, concurrent symptoms of deep vein thrombosis (DVT), and signs of tachypnea, tachycardia, and hypoxia, may also be present[1]. Blocking the pulmonary arterial wall can lead to acute, potentially reversible right ventricular failure that endangers life[2]. Currently, low-molecular-weight heparins (LMWH) are becoming the preferred treatment for hemodynamically stable patients without right ventricular dysfunction (non-massive PE), while there is consensus that patients with massive PE and cardiogenic shock require urgent removal of the pulmonary clot using thrombolytic agents, surgical embolectomy, or catheter-based thrombus aspiration[3]. We also want to add, considering the specific case in which lay resuscitation was initiated before the arrival of emergency services, the importance of education and raising awareness among the Croatian public about the importance of knowing resuscitation procedures that can save lives, following the example of the "Revive Me" campaign.

Case report: Patient R. D., 47-years-old. She had not experienced severe illness before and was hospitalized as a result of a non-hospital lay resuscitation. Upon admission to the hospital, a high-risk massive pulmonary embolism was diagnosed, which was further complicated in the emergency room by the patient experiencing repeated episodes of epinephrine use, and according to clinical and laboratory findings, the patient entered into cardiopulmonary shock. MSCT confirmed massive pulmonary embolism and deep vein thrombosis in both legs. Hospitalization began in the Coronary Care Unit with the patient on a respirator under continuous monitoring, and therapy with LMWH was initiated. After the patient's condition stabilized, she was transferred to the Department of Vascular Diseases and Arterial Hypertension. Over the next few days, the patient felt subjectively well, continued treatment with LMWH, and received education about her new condition from the nurses. During the daytime examination, a diagnosis of uterine fibroids was established, and in the patient's medical history, it was discovered that she had been taking hormonal therapy without being aware of the importance of potential complications and side effects associated with that therapy. In providing quality healthcare, the nurse provides emotional support and a sense of security to the patient during hospitalization. After five days, there was a progression of PE, and the patient's overall condition deteriorated. Heparin-induced thrombocytopenia was confirmed (HIT positive), and the pulmonary embolism progressed with a high risk of another cardiopulmonary arrest. The patient underwent successful mechanical thrombectomy, a procedure that proceeded without complications. After improvement, the patient was transferred back to the Department, where she stayed until the end of hospitalization. The patient made a full recovery, was in good physical condition, and mentally and psychologically stable. She was discharged home with instructions for her future lifestyle and the importance of adhering to prescribed therapy. Despite all the diagnoses of the patient's condition, she was aware of her state and determined to adopt a new way of life.

Conclusion: This case illustrates the complexity of treating patients with multiple diagnoses and emphasizes the crucial role of nurses in providing care, patient education, and ensuring safety during hospitalization. Every patient with VTE should have close outpatient monitoring. Efforts should be made to determine the cause of PE, which can sometimes be challenging in a hospital setting[1]. In providing quality healthcare, the nurse provides emotional support and a sense of security to the patient during hospitalization. In the treatment of pulmonary embolism and DVT, nurses play a vital role in providing knowledge-based care. Patient education about activities that promote healing, and the use of compression stockings/bandages are important aspects of nursing care.

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