Peripheral injury to the brachialis plexus occurred as a consequence of the placement of an extracorporeal membrane oxygenation device

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Introduction: Extracorporeal membrane oxygenation (ECMO) is a cardiopulmonary support system. It has advanced significantly in recent years and has become a therapeutic option for patients with cardiorespiratory failure. ECMO support is established by cannulation of the patient's circulatory system. There are two basic types of ECMO systems, veno-arterial and veno-venous modality. The VA-ECMO modality is most often used in cardiothoracic surgery, because unlike VV-ECMO support, it also provides respiratory support to the cardiovascular system. Neurological complications after ECMO occur frequently, and the prevalence and types of neurological complications vary depending on the patient population[1]. A patient with a brachial plexus injury associated with VA-ECMO immediately after heart transplantation is presented. Weakness of the right arm was noted after cannulation of the axillary artery to place the ECMO device. Application of the ECMO procedure is associated with multiple risks (eg. bleeding, formation of blood clots). He was diagnosed with a peripheral nerve injury through a neurological and electrodiagnostic examination (multi slice computer tomography of the brain and electromyoneurography of the right hand), which revealed a lesion of the right brachial plexus. Doppler sonography was performed to determine the compressive risk of a blood clot. Early physiotherapy procedures for such neurological complications aim to restore the function of the injured nerves and muscles to their previous level and prevent potential disability.

Methods and Results: The patient was selected from the register of the Institute for Cardiac and Transplantation Medicine from patients treated with ECMO from January 2013 to September 2022. One patient had unilateral arm weakness after starting ECMO therapy. The data from the neurological examination and electrophysiological examination for this patient proved the diagnosis of brachial plexus injury, dominantly the upper part of the plexus.

Conclusion: Axillary artery cannulation resulting in hematoma formation was identified as a probable risk factor for brachial plexus injury in our patient. Physiotherapists are crucial in the early rehabilitation phase after such neurological injuries in re-establishing functions through strength, coordination, flexibility and preventing disability.

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LITERATURE

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