

PHYSICAL THERAPY FOR A CHILD POST COVID-19 WITH MULTIPLE AMPUTATIONS: A CASE STUDY

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ABSTRACT

Research for effective treatment interventions following COVID-19 complications is emerging. In the current case study, the effects of physical therapy intervention in a complex pediatric patient with amputations due to complications of extracorporeal membrane oxygenation (ECMO) following COVID-19 infection are presented. At three months of age, the patient was admitted to an acute care hospital due to COVID-19 infection leading to acute respiratory failure. Extracorporeal membrane oxygenation (ECMO) life support was required due to the decline in her condition. During the hospital stay, the patient developed acute limb ischemia and blood clots, which eventually resulted in bilateral below knee amputations (BKAs) and a left below elbow amputation (BEA). The patient was discharged home on a ventilator after six months of hospitalization. The patient was 15 months old when she was first seen at our physical therapy (PT) clinic. The patient received bilateral below knee protheses and a left below elbow prosthesis to facilitate functional sitting and standing. Developmental activities were initiated to promote the achievement of motor milestones. Following six months of outpatient PT intervention, the patient demonstrated improvement in mobility and social function. This case report supports the benefits of early PT for children with multiple amputations.

Keywords: amputation, COVID-19, ECMO, physical therapy

INTRODUCTION

Since the outbreak of the coronavirus disease 2019 (COVID-19) pandemic, approximately 100 million cases have been reported in the United States, 22.3% of which occurred in children under 18 years old [1]. Even though COVID-19 symptoms in children are generally milder when compared to adults, it was found that a small group of children with COVID-19 infection could develop severe complications including respiratory failure, circulatory failure, and multiorgan dysfunction [2]. Extracorporeal membrane oxygenation (ECMO) is a life support system that can supplement the respiratory and circulatory function in the setting of native system failure [3]. Despite its life-saving value for children who develop pulmonary and cardiac failure following COVID-19 infection [4,5], ECMO may lead to devastating vascular complications including acute limb ischemia, blood clot formation, and amputations [6]. Researchers have found that patients younger than 18 years old have a higher incidence of amputations following ECMO than adults [7]. Limb loss at a young age leads to numerous gross motor deficits including balance impairments, delayed onset of ambulation, gait deviations, and decreased independent mobility [8]. Physical therapy (PT) plays a key role in improving the functional mobility and quality of life in children with multiple limb amputations. In this case study, we report the effects of PT intervention for a young child who had multiple limb amputations following COVID-19 infection and subsequent ECMO intervention.