


REABILITAÇÃO DE TRANSPLANTADO AO CORAÇÃO COM COVID-19EM UCI- CASO CLÍNICO
REHABILITATION IN HEART TRANSPLANT WITH COVID-19IN ICU-CASE REPORT
REHABILITACIÓN DEL TRASPLANTADO DE CORAZÓN CON COVID-19EN UCI-REPORTE DE CASO

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RESUMO

Introdução: As pessoas transplantadas têm alto risco de infecção grave relacionada à doença covid-19. Em pessoas transplantadas ao coração, o impacto dessa infecção permanece desconhecido, bem como a importância da reabilitação, no processo de recuperação.

Objetivo: Descrever a intervenção do enfermeiro de reabilitação num caso de uma pessoa transplantada cardíaca infetada com COVID-19 numa Unidade de Cuidados Intensivos (UCI).

Métodos: Relato de caso que segue as diretrizes CARE. Este caso representa um homem de 60 anos, recetor de transplante cardíaco que apresentava história de 5 dias de tosse, febre e intolerância à atividade, com necessidade de internamento em UCI. A intervenção de enfermagem de reabilitação consistiu num plano, com 2 sessões diárias, com duração de 30-45 minutos cada, adaptada à evolução da pessoa.

Resultados: Este caso suporta a possibilidade e o impacto da intervenção de enfermagem de reabilitação, na equipa multidisciplinar, na melhoria da pessoa, quer através da melhoria/resolução dos status de diagnóstico de enfermagem de reabilitação quer na melhoria clínica da pessoa. Demonstra a possibilidade prescrição de intervenções de mobilização precoce, exercícios respiratórios no contexto da pessoa transplantada com doença grave de covid internada em UCI.

Conclusão: As intervenções de Enfermagem de Reabilitação, neste caso, traduziram uma melhoria na função respiratória e funcional da pessoa transplantada cardíaca infetada com COVID-19 internada em cuidados de UCI, com utilização de diferentes intervenções.

Palavras-Chave: relatos de casos; transplante de coração; COVID-19; unidades de cuidados intensivos; enfermagem de reabilitação

ABSTRACT

Introduction: Solid-organ transplant patients have a high risk of severe infection related to COVID-19 disease. In heart transplanted patients the impact of this infection remains unknown, as well as importance of rehabilitation, on recovery process.

Objective: To describe intervention of rehabilitation nurse in a case of a heart transplanted person infected with COVID-19 in UCI.

Methods: Case report follow CARE guidelines. This case represents a 60-year-old man, a heart transplant recipient, who presented with a 5-day history of cough, fever, and activity intolerance, who required hospitalization in intensive care. Rehabilitation nursing intervention in respiratory and functional functions was due 2 times a day, during 30-45minutes, adapted to the evolution of the person.

Results: This case supports the possibility and impact of rehabilitation nursing intervention, in the multidisciplinary team, on the improvement of the person, either through the improvement/resolution of the rehabilitation nursing diagnosis status or on the clinical improvement of the person. Demonstrates the possibility of prescribing early mobilization interventions, breathing exercises in the context of the transplanted person with severe covid disease, admitted to the ICU, using different techniques.

Conclusion: Rehabilitation Nursing interventions, in this case, translated into an improvement in the respiratory and functional function of a heart transplant patient infected with COVID-19 during UCI care.

Keywords: case reports; heart transplantation; COVID-19; intensive care units; rehabilitation nursing

RESUMEN

Introducción: Los pacientes de trasplante de órganos sólidos tienen un alto riesgo de infección grave relacionada con la enfermedad de covid-19. En pacientes trasplantados de corazón se desconoce el impacto de esta infección, así como la importancia de la rehabilitación, en el proceso de recuperación.

Objetivos: Describir la intervención de la enfermera de rehabilitación en un caso de una persona trasplantada de corazón infectada con COVID-19 en la UCI.

Métodos: Reporte de caso siguiendo las guías CARE. Este caso representa a un hombre de 60 años, receptor de trasplante de corazón que presentó un cuadro de 5 días de evolución con tos, fiebre e intolerancia a la actividad, que requirió hospitalización en cuidados intensivos. La intervención de enfermería de rehabilitación en las funciones respiratorias y funcionales se realizó 2 veces al día, durante 30-45 minutos, adaptado a la evolución de la persona.

Resultados: Este caso sustenta la posibilidad y el impacto de la intervención de enfermería rehabilitadora, en el equipo multidisciplinario, en la mejoría de la persona, ya sea a través de la mejoría/resolución del estado del diagnóstico de enfermería rehabilitadora o en la mejoría clínica de la persona. Demuestra la posibilidad de prescribir intervenciones tempranas de movilización, ejercicios de respiración en el contexto de la persona trasplantada con enfermedad grave de COVID-19 ingresada en la UCI.

Conclusión: Las intervenciones de Enfermería de Rehabilitación, en este caso, tradujeron una mejoría en la función respiratoria y funcional de la persona trasplantada cardíaca infectada con COVID-19 durante la atención de la UCI, usando diferentes intervenciones.

Palabras Clave: informes de casos; trasplante de corazón; COVID-19; unidad de cuidados intensivos; enfermería de rehabilitación

INTRODUCTION

The severe acute respiratory syndrome coronavirus (SARS-CoV-2) is rapidly infecting people around the world, resulting in the infectious disease COVID-19 that has been declared a pandemic (Huang et al., 2020). Critical illness associated with SARS-CoV-2 infection is often associated with prolonged periods of intensive care treatment, with a consequent negative impact on clinical and functional results in the short and medium terms. Recipients of heart transplants (HT) may be at increased risk of adverse outcomes attributable to infection with COVID-19 because of multiple comorbidities and clinically significant immunosuppression; however, the effects of this disease in these patients are unclear (Bottio et al., 2021). To improve patients' quality of life, an integrated rehabilitative process that includes cardiac, respiratory, neuromuscular, and swallowing interventions, as well as psychological support, is recommended (Agostini et al. 2021). It is therefore predictable and desirable to actively participate in ICU rehabilitation.

1. CASE PRESENTATION

This case represents a 60-year-old man who had a heart transplant 9 months earlier, without complications, is diabetic, has chronic obstructive pulmonary disease (COPD), a history of dilated cardiomyopathy with recurrent heart failure admissions and end-organ hypoperfusion. He arrived at the hospital hypoxic and gradually deteriorated, necessitating non-invasive mechanical ventilation (Hi-Flow) and ICU care treatment. On admission to the ICU, he presented with respiratory distress and hypoxia, and the chest x-ray showed progressive bilateral pulmonary infiltrates (Figure 1). This was followed up with a 5-day history of cough, fever, and activity intolerance.



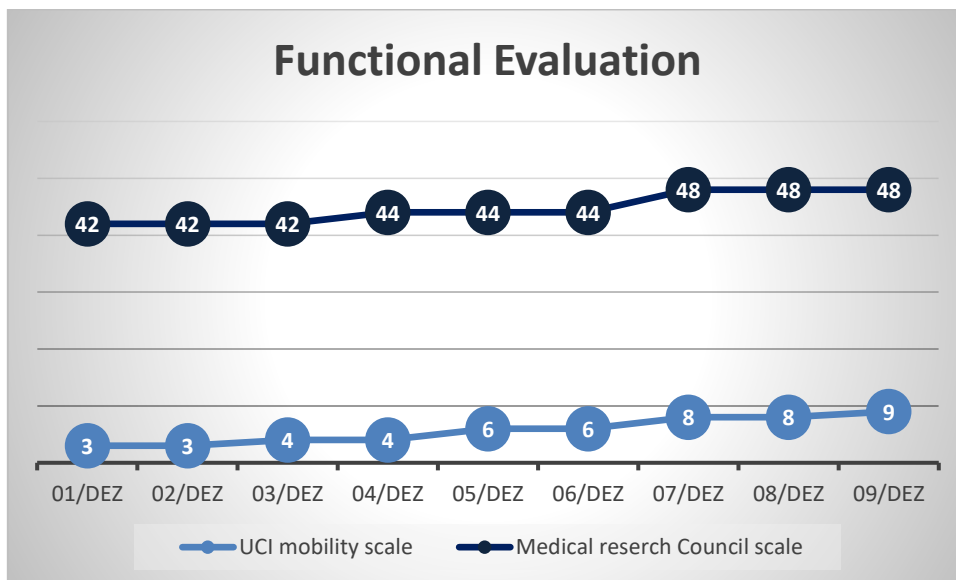
Figure 1 - First day X-ray

Rehabilitation Nurses' intervention started on the second day in the ICU. It focused on a respiratory and functional rehabilitation program, twice day for 30-45 minutes each, for 10 days. Table 1 describes Rehabilitation Nursing diagnoses and interventions using International Classification for Nursing Practice (CIPÉ®) terms and is registered in the B-simple program. Some interventions respond to more than one diagnoses.

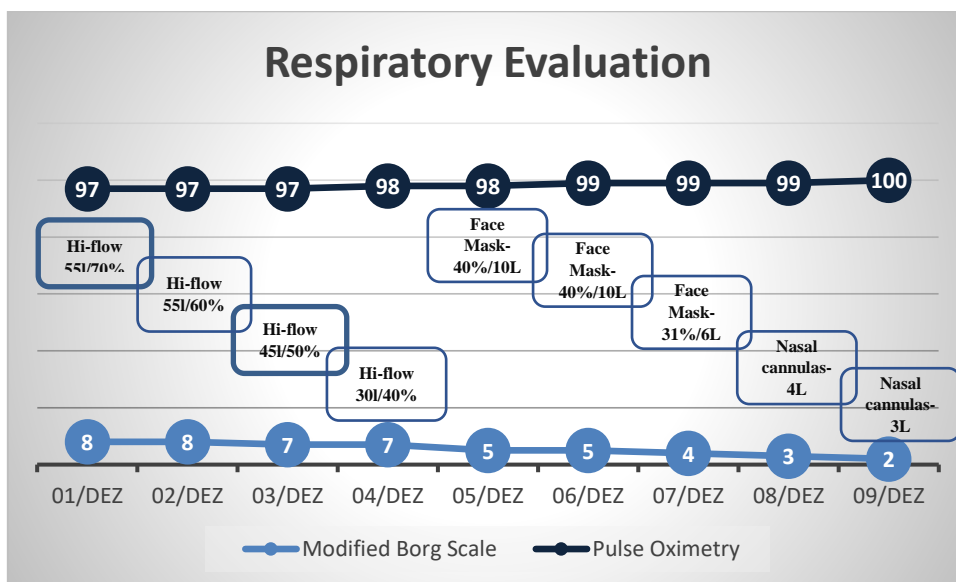
Table 1 - Rehabilitation Nursing Plan.

Date	Diagnoses	Intervention
01/12	Respiratory function: compromised Exercise Intolerance Knowledge about energy conservation techniques - not demonstrated Muscle movement: compromised	Breathing techniques (active cycle of breathing technique, thoracic expansion exercises, forced expiration technique) Get out of bed Teaching about energy conservation technics during activities (ex. eating, taking a bath, speaking...) Active-assisted mobilization in all joints, 1 set, 10 repetitions
05/12	Respiratory function: compromised Muscle movement: compromised Exercise Intolerance Knowledge about energy conservation Technics - not demonstrated	Breathing techniques (active cycle of breathing technique, thoracic expansion exercises, forced expiration technique) Inspiratory muscle training (spirometry)- 5 exercises 7 times/day Active-resisted mobilization in all joints, 1 set, 10 repetitions Strength training (0,5kg)- warms- 1 set, 5 repetitions Aerobic training (cycle ergometer- 5 mints) Teaching about energy conservation technics during activities
07/12	Respiratory function: compromised Exercise Intolerance Muscle movement: compromised	Breathing techniques (thoracic expansion exercises) Inspiratory muscle training (spirometry)- 7 exercises 10 times/day Aerobic training (cycle ergometer- 20mints), walk- 100 meters) Active-resisted mobilization in all joints, 1 set, 15 repetitions, Strength training (0.5kg)- warms - 1 set, 9 repetitions (2 times/day)
09/12	Respiratory function: compromised Activity intolerance Muscle movement: compromised	Breathing techniques (thoracic expansion exercises) Inspiratory muscle training (spirometry)- 10 exercises 10 times/day Aerobic training (cycle ergometer- 15+15mints), walk- 150 meters Strength training (0.5kg), warms - 2 set, 8 repetitions (2 times/day)

Results were evaluated using the ICU mobility scale (Hogdson et al, 2014), The Medical Research Council (MRC) Scale for Muscle Strength (Medical Research Council, 1976), modified Borg Scale (Borg, 1970), pulse oximetry, and with the improvement of rehabilitation nursing diagnoses. It was clear that there was a positive evolution, as is visible on graphics 1 and 2 and compared on the thoracic X-ray (Figure 2).



Graphics 1 - Functional Evaluation.



Graphics 2 - Respiratory Evaluation.

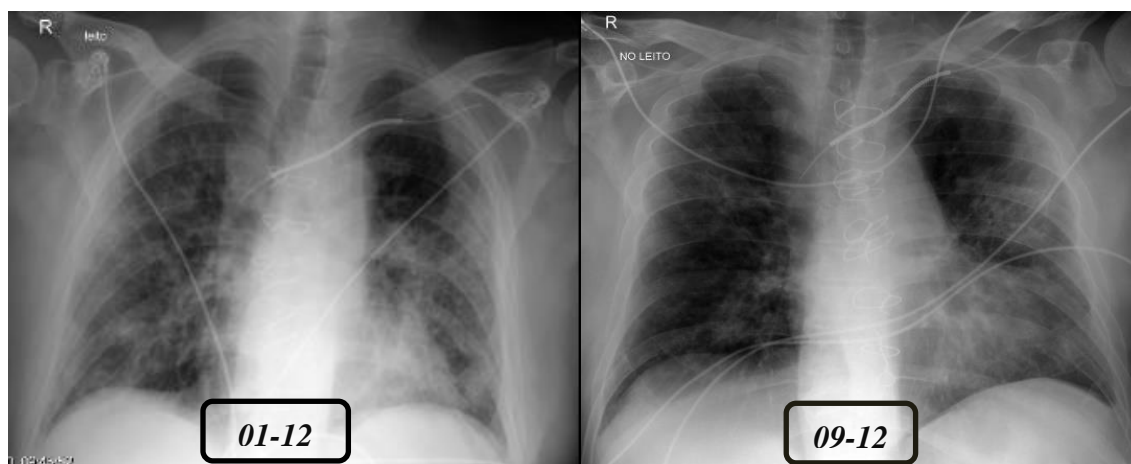


Figure 2 - Thoracic X-ray comparison.

No adverse events were verified during the rehabilitation intervention. After 10 days, the patient was transferred to an inpatient unit and went home 3 days later.

2. DISCUSSION

Patients with COVID-19 disease may need prolonged bed rest, leading to immobilization syndrome associated with respiratory dysfunction, both of which might require rehabilitation interventions. Prolonged immobility promotes muscle weakness, physical deconditioning, as well as changes in balance and posture, and joint stiffness and pain, which have a strong impact on patients' general condition, quality of life, and self-care (Latif et al., 2020). This was the risk for this patient, aggravated by the fact that he had a heart transplant, was in recovery and was a COPD. So, rehabilitation interventions were focused on motor improvement and immobilization syndrome prevention, liked as described in the literature. Early mobilization and rehabilitation in ICU patients are widely shared and accepted, and have been supported by randomized controlled trials, systematic reviews, and recommendations (Clini & Ambrosino, 2005; Reid et al., 2018). Bernal-Utrera and colleagues (2021) described in their review that rehabilitation is a necessary strategy in critically ill patients with COVID-19 because it prevents complications and contributes to the stabilization of patients in critical periods, facilitating their recovery. They described that intervention could be based on three main treatment modalities: respiratory techniques, to favor pulmonary ventilation, the mobilization and excretion of secretions, and the stimulation of respiratory muscles; positional treatment, exercise therapy to improve immune function and reduce complications, favoring functional recuperation. In this case, rehabilitation nurse interventions were based on this.

The patient improved his functionality and became more independent in self-care and walking. Respiratory Rehabilitation was the most difficult aspect of providing consistent care in this situation, which was extremely demanding and could result in ICU staff shortages. It was needed to reduce unnecessary exposure of healthcare workers to the virus, so, for example aerosol therapy couldn't be used. Few rehabilitation exercises concerning COVID-19 patients were reported, but we know that they were necessary. A modified version of rehabilitation exercises based on the underlying mechanisms of the COVID-19 were applicable. These exercises aimed to improve the pulmonary function of patients and facilitate the airway cleaning process; some of them were done it in the prone position. As shown in Graph 2, there were improvements in hypoxemia and, subjective notion of effort, with a progressive reduction in the need for oxygen therapy as well as a thoracic x-ray.

With the patient's positive evolution, it was also possible to plan a low-intensity physical exercise with the monitoring of his subjective notion of effort, which included walking, cycloergometry, and strength exercise with a 0.5 kg. The Uhlig and colleagues (2022) described in their study that initiation of out-of-bed mobilization and the levels of mobility (sitting over the edge of the bed, sitting in a chair, standing, and ambulating) reached by critically ill patients with COVID-19 during hospitalization achieved higher mobility levels in the ICU and at hospital discharge.

CONCLUSION

Rehabilitation Nursing interventions were possible and important in this heart transplant person with COVID-19 in ICU, translating to an improvement in the respiratory and functional function of this patient; further studies in a large population must be done.

ETHICAL PROCEDURES

Ethic Committee Coimbra Hospital and University Center- OBS.SF.111/2021.

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