

DOUBLE HEART-KIDNEY TRANSPLANTATION: A BRIEF REVIEW OF THE LITERATURE

João Vitor Miranda Souto Ferreira

União das Faculdades dos Grandes Lagos –
UNILAGO

Vitor Hugo de Souza

União das Faculdades dos Grandes Lagos –
UNILAGO

Arthur Carvalho Ferro

União das Faculdades dos Grandes Lagos –
UNILAGO

Raul Torres Arikawa

União das Faculdades dos Grandes Lagos –
UNILAGO

Miguel Gabriel Marchesi Medina

União das Faculdades dos Grandes Lagos –
UNILAGO

Mateus Lopes Carvalho

União das Faculdades dos Grandes Lagos –
UNILAGO

Caio Caetano de Queiroz

União das Faculdades dos Grandes Lagos –
UNILAGO

Marcos Vinícius Veanholi

União das Faculdades dos Grandes Lagos –
UNILAGO

Pedro Paulo Tarozo Escobar

União das Faculdades dos Grandes Lagos –
UNILAGO

Leonardo Previato de Araujo

União das Faculdades dos Grandes Lagos –
UNILAGO

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INTRODUCTION

Organ donation is an act through which body parts can be donated, whether organs or tissues, with the purpose of restoring the functions of a diseased organ or tissue¹. In Brazil, organ transplantation is regulated by the National Transplantation System, linked to the Ministry of Health¹. Still, looking at the individual as a complete being and as a set of several systems, in many situations organic dysfunctions may be related from the same pathology or the dysfunction of an organ leading to dysfunction of another, as occurs between the kidneys and the heart¹.

In the past, an individual who met criteria for heart transplantation could not be approached if there was chronic kidney disease, which was considered an important contraindication². On the other hand, individuals who needed a new kidney could not be submitted to the transplant if they had a serious heart disease. With the advancement of transplantation techniques, in selected cases, patients with dysfunction in both organs can be submitted to a double transplant of the heart and kidney³.

OBJECTIVES

To analyze and describe the main aspects of Double Heart-Kidney Transplantation in the last 5 years.

METHODS

This is a narrative review, in which the main aspects of Double Heart-Kidney Transplantation in the last 5 years were analyzed. The beginning of the study was carried out with theoretical training using the following databases: PubMed, sciELO and Medline, using the following descriptors: “heart transplant” AND “kidney transplant” AND “combined Heart-Kidney

Transplantation” AND “organ transplant” AND “epidemiology” in the last 10 years. Because it is a narrative review, the present study does not have risks.

RESULTS AND DISCUSSION

There are several situations in which the heart and kidney may be dysfunctional. For this, a classification was created in which it helps to classify these situations, called cardiorenal syndrome (CRS)⁴. This syndrome is a pathophysiological condition in which there is an interaction between cardiac and renal dysfunction, in which acute or chronic failure of one organ causes acute or chronic failure of the other organ^{4,5}. It can be subdivided into 5 types: SCR-1 is triggered by acute heart failure, which causes kidney injury and/or acute kidney failure. In SCR-2 we have progressive chronic heart failure, causing progressive kidney damage until establishing a chronic kidney disease. SCR-III is characterized by acute renal failure, which causes retention of residual and nitrogenous products and, consequently, myocardial damage and cardiac arrhythmias. In turn, we have in SCR-IV chronic kidney disease leading to morphological and functional alterations of the heart, promoting secondary chronic heart failure. Finally, we have SCR-V, in which there is cardiac and renal failure secondary to systemic pathologies^{4,5}.

The decision to consider Double Heart-Kidney Transplantation must be motivated mainly by poor results related to renal failure after⁶. A negative factor that must be taken into account in the case of a Double Heart-Kidney Transplant is the scarcity of both organs⁷.

In addition, when comparing overall survival in separate populations, patients with Double Heart-Kidney Transplantation have increased in-hospital mortality, resulting in reduced 1-year survival rates compared

to patients undergoing separate kidney and heart transplants, given the greater complexity of the procedure⁸. On the other hand, in well-selected cases, 5- and 10-year heart graft survival is significantly better in patients undergoing Double Heart-Kidney Transplant compared to patients undergoing heart transplant only⁸.

Besides, the sequence in which the interventions will be carried out is not fully defined and currently must be individualized⁹. As an opinion, the two-stage approach is suggested, with the argument that there would be time for hemodynamic stabilization to perform the kidney transplant. However, it is considered that such an approach increases the time of kidney ischemia and the potential for immunogenicity, due to the increase in the expression of immunocompatibility complexes⁹. In this context it is difficult to

know which patients who would really benefit from this approach must undergo careful selection. To this end, studies are being conducted in order to establish criteria to find the best candidate patients for the approach^{7,8}.

CONCLUSION

The Double Heart-Kidney Transplantation is a therapy that is gaining ground nowadays in patients with dysfunction in both organs. On the other hand, the selection criteria to identify the most suitable candidates continue to be refined. However, the results are favorable, mainly increasing the survival of the cardiac graft. It is also worth mentioning that more studies still need to be written, mainly regarding the main indications and ethical questions on the subject.

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