

# Author's Accepted Manuscript

## Early PCR Detection of Chagas Disease Reactivation in Heart-Transplanted Patients

Priscilla Almeida da Costa, Marcela Segatto, Danielle Fernandes Durso, Wagson José de Carvalho Moreira, Lucas Lodi Junqueira, Fábio Morato de Castilho, Silvio Amadeu de Andrade, Cláudio Léo Gelape, Egler Chiari, Andréa Teixeira-Carvalho, Sergio Danilo Junho Pena, Carlos Renato Machado, Gloria Regina Franco, Geraldo Brasileiro Filho, Maria da Consolação Vieira Moreira, Andréa Mara Macedo



<http://www.jhltonline.org>

PII: S1053-2498(17)31648-0  
DOI: <http://dx.doi.org/10.1016/j.healun.2017.02.018>  
Reference: HEALUN6465

To appear in: *Journal of Heart and Lung Transplantation*

Cite this article as: Priscilla Almeida da Costa, Marcela Segatto, Danielle Fernandes Durso, Wagson José de Carvalho Moreira, Lucas Lodi Junqueira, Fábio Morato de Castilho, Silvio Amadeu de Andrade, Cláudio Léo Gelape, Egler Chiari, Andréa Teixeira-Carvalho, Sergio Danilo Junho Pena, Carlos Renato Machado, Gloria Regina Franco, Geraldo Brasileiro Filho, Maria da Consolação Vieira Moreira and Andréa Mara Macedo, Early PCR Detection of Chagas Disease Reactivation in Heart-Transplanted Patients, *Journal of Heart and Lung Transplantation*, <http://dx.doi.org/10.1016/j.healun.2017.02.018>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## EARLY PCR DETECTION OF CHAGAS DISEASE REACTIVATION IN HEART-TRANSPLANTED PATIENTS

Priscilla Almeida da Costa, MS<sup>a\*</sup>; Marcela Segatto, PhD<sup>b\*</sup>; Danielle Fernandes Durso, PhD<sup>a</sup>; Wagson José de Carvalho Moreira<sup>a</sup>; Lucas Lodi Junqueira, MD, PhD<sup>c</sup>; Fábio Morato de Castilho, MD, MS<sup>c</sup>; Silvio Amadeu de Andrade, MD<sup>c</sup>; Cláudio Léo Gelape, MD, PhD<sup>d</sup>; Egler Chiari, PhD<sup>e</sup>; Andréa Teixeira-Carvalho, PhD<sup>f</sup>; Sergio Danilo Junho Pena, MD, PhD<sup>a</sup>; Carlos Renato Machado, PhD<sup>a</sup>; Gloria Regina Franco, PhD<sup>a</sup>; Geraldo Brasileiro Filho, MD, PhD<sup>g</sup>; Maria da Consolação Vieira Moreira MD, PhD<sup>h</sup>; Andréa Mara Macedo PhD<sup>a1</sup>

From the <sup>a</sup>Departamento de Bioquímica e Imunologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; <sup>b</sup>Departamento de Genética, Instituto de Biociências, Universidade Estadual Paulista, Botucatu, São Paulo, Brazil; <sup>c</sup> Hospital das Clínicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; <sup>d</sup>Departamento de Cirurgia, Faculdade de Medicina, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; <sup>e</sup>Departamento de Parasitologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; <sup>f</sup>Centro de Pesquisas René Rachou, FIOCRUZ-Minas, Grupo Integrado de Pesquisas em Biomarcadores, Belo Horizonte, Minas Gerais, Brazil; <sup>g</sup>Departamento de Patologia da Faculdade de Medicina, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil; <sup>h</sup>Departamento de Clínica Médica, Faculdade de Medicina, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

\*These authors contributed equally to this work

<sup>1</sup>Corresponding Author, e-mail: andrea@ufmg.br

**Keywords:** Chagas disease reactivation; heart transplantation; endomyocardial biopsy; molecular diagnostics; polymerase chain reaction

**ABSTRACT**

**BACKGROUND:** Heart transplantation is an important therapeutic option for chagasic patients with severe cardiomyopathy. During patient follow-up, the differential diagnosis between cardiac transplant rejection and Chagas disease infection reactivation remains a challenging task, which hinders the rapid implementation of the appropriate treatment. Herein we investigate whether PCR strategies could facilitate early detection of *Trypanosoma cruzi* (*T. cruzi*) in transplanted endomyocardial biopsies (EMB).

**METHODS:** We analyzed 500 EMB specimens obtained from 58 chagasic cardiac transplanted patients, using PCR approaches targeted to nuclear (rDNA 24S $\alpha$ ) and mitochondrial (kDNA) markers, and compared the efficiency of these approaches with that of other tests routinely used. **RESULTS:** *T. cruzi* DNA was detected in 112 EMB specimens derived from 39 patients (67.2%), and the first positive result had a median time of 1.0-month post-transplant. Conventional histopathological, blood smear, and hemoculture analyses showed lower sensitivity and higher median time to the first positive result. Patient follow-up revealed that 31/39 PCR-positive cases presented clinical reactivation of Chagas disease at different times after transplantation. PCR techniques showed considerable sensitivity (0.82) and specificity (0.60), with area under the receiver operating characteristic (ROC) curves of 0.708 (P=0.001). Moreover, PCR techniques anticipated the clinical signs of Chagas disease reactivation by up to 36 months, with a median time of 6 months and an average of 9.1 months. **CONCLUSION:** We found a good association between the PCR diagnosis and the clinical signs of the disease, indicating that PCR

Download English Version:

<https://daneshyari.com/en/article/5615740>

Download Persian Version:

<https://daneshyari.com/article/5615740>

[Daneshyari.com](https://daneshyari.com)