ISSN 1948-5182 (online)

World Journal of *Hepatology*

World J Hepatol 2022 September 27; 14(9): 1694-1843

Published by Baishideng Publishing Group Inc

World Journal of Hepatology

Contents

Monthly Volume 14 Number 9 September 27, 2022

REVIEW

MINIREVIEWS

ORIGINAL ARTICLE

Case Control Study

Retrospective Cohort Study

Retrospective Study

World Journal of Hepatology

Monthly Volume 14 Number 9 September 27, 2022

Contents

World Journal of Hepatology

Monthly Volume 14 Number 9 September 27, 2022

Contents

ABOUT COVER

Editorial Board Member of *World Journal of Hepatology*, Mohit Girotra, MD, FASGE, FACG, FACP, Consultant Gastroenterologist and Therapeutic Endoscopist, Digestive Health Institute, Swedish Medical Center, Seattle, WA 98104, United States. girotra.mohit@gmail.com

AIMS AND SCOPE

The primary aim of *World Journal of Hepatology* (*WJH*, *World J Hepatol*) is to provide scholars and readers from various fields of hepatology with a platform to publish high-quality basic and clinical research articles and communicate their research findings online.

WJH mainly publishes articles reporting research results and findings obtained in the field of hepatology and covering a wide range of topics including chronic cholestatic liver diseases, cirrhosis and its complications, clinical alcoholic liver disease, drug induced liver disease autoimmune, fatty liver disease, genetic and pediatric liver diseases, hepatocellular carcinoma, hepatic stellate cells and fibrosis, liver immunology, liver regeneration, hepatic surgery, liver transplantation, biliary tract pathophysiology, non-invasive markers of liver fibrosis, viral hepatitis.

INDEXING/ABSTRACTING

The *WJH* is now abstracted and indexed in PubMed, PubMed Central, Emerging Sources Citation Index (Web of Science), Scopus, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database. The 2022 edition of Journal Citation Reports® cites the 2021 Journal Citation Indicator (JCI) for *WJH* as 0.52. The *WJH*'s CiteScore for 2021 is 3.6 and Scopus CiteScore rank 2021: Hepatology is 42/70.

RESPONSIBLE EDITORS FOR THIS ISSUE

NAME OF JOURNAL
World Journal of Hepatology

ISSN
ISSN 1948-5182 (online)

LAUNCH DATE
October 31, 2009

FREQUENCY
Monthly

EDITORS-IN-CHIEF
Nikolaos Pyrsopoulos, Ke-Qin Hu, Koo Jeong Kang

EDITORIAL BOARD MEMBERS
https://www.wjgnet.com/1948-5182/editorialboard.htm

PUBLICATION DATE
September 27, 2022

INSTRUCTIONS TO AUTHORS
https://www.wjgnet.com/bpg/gerinfo/204

GUIDELINES FOR ETHICS DOCUMENTS
https://www.wjgnet.com/bpg/GerInfo/287

GUIDELINES FOR NON-NATIVE SPEAKERS OF ENGLISH
https://www.wjgnet.com/bpg/gerinfo/240

PUBLICATION ETHICS
https://www.wjgnet.com/bpg/GerInfo/288

PUBLICATION MISCONDUCT
https://www.wjgnet.com/bpg/gerinfo/208

ARTICLE PROCESSING CHARGE
https://www.wjgnet.com/bpg/gerinfo/242

STEPS FOR SUBMITTING MANUSCRIPTS
https://www.wjgnet.com/bpg/GerInfo/239

ONLINE SUBMISSION
https://www.f6publishing.com

World Journal of Hepatology

Submit a Manuscript: https://www.f6publishing.com

World J Hepatol 2022 September 27; 14(9): 1840-1843

DOI: 10.4254/wjh.v14.i9.1840

ISSN 1948-5182 (online)

LETTER TO THE EDITOR

Analysis of hepatitis C virus-positive organs in liver transplantation.

Isabel Legaz, Manuel Muro

Specialty type: Gastroenterology and hepatology

Provenance and peer review: Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0
Grade B (Very good): B
Grade C (Good): C
Grade D (Fair): 0
Grade E (Poor): 0

P-Reviewer: Elpek GO, Turkey; Tanaka Y, Japan

Received: May 30, 2022
Peer-review started: May 30, 2022
First decision: July 6, 2022
Revised: July 7, 2022
Accepted: August 30, 2022
Article in press: August 30, 2022
Published online: September 27, 2022

Isabel Legaz, Department of Legal and Forensic Medicine, Biomedical Research Institute, Regional Campus of International Excellence "Campus Mare Nostrum", Faculty of Medicine, University of Murcia, Murcia 30100, Spain

Manuel Muro, Department of Immunology Service, Instituto Murciano de Investigación Biosanitaria, Hospital Clínico Universitario Virgen de la Arrixaca, Murcia 30120, Spain

Corresponding author: Isabel Legaz, PhD, Senior Lecturer, Department of Legal and Forensic Medicine, Biomedical Research Institute, Regional Campus of International Excellence "Campus Mare Nostrum", Faculty of Medicine, University of Murcia, Espinardo, Murcia 30100, Spain. isalegaz@um.es

Abstract

The authors of this study note that in liver transplantation (LT), the survival rates of hepatitis C virus (HCV)-positive donors and HCV-negative receivers are compa-rable to those of HCV-negative donors and recipients. Direct-acting antiviral (DAA) therapies have nearly 100% effectiveness in treating HCV. Between 2006 and 2016, the percentages of HCV-positive patients on the waiting list and HCV-positive LT recipients fell by 8.2 percent and 7.6 percent, respectively. Records from April 1, 2014, in which the donor and receiver were both at least 18 years old and had a positive HCV status, were the only ones eligible for the study. The analysis for this study was restricted to the first transplant recorded for each patient using a data element that documented the number of prior transplants for each recipient, although some recipients appeared multiple times in the data set. HCV-positive recipients or people with fulminant hepatic failure were the main beneficiaries of primary biliary cirrhosis among HCV-positive donors. However, there is still a reticence to use HCV-positive donor organs in HCV recipients due to clinical and ethical considerations. Similar survival rates between HCV-positive donors and recipients and HCV-negative donors and receivers illustrate the efficacy of these DAA regimens.

Key Words: Hepatitis C virus; Liver transplant; Graft survival; United network for organ sharing; Direct-acting antiviral

Core Tip: The scarcity of viable organs, which is quite limited, the waiting lists that reflect chronicity and the increase in time to transplantation, and the rate of physical deterioration resulting in death while waiting for a helpful organ for transplantation, promote the search for new ways, strategies, and protocols to increase the group of donors acceptable for transplantation, such as donors in asystole, donors with tumor processes, or donors with previous infection. The application of antivirals against the hepatitis C virus (HCV), with unprecedented success in the elimination of the pathogen, has led to the use of HCV-positive donors as optimal donors for HCV-negative recipients, with survival similar to that of both HCV-negative donors and recipients, which supports the use of these HCV-positive donors without restrictions.

Citation: Legaz I, Muro M. Analysis of hepatitis C virus-positive organs in liver transplantation.. *World J Hepatol* 2022; 14(9): 1840-1843
URL: https://www.wjgnet.com/1948-5182/full/v14/i9/1840.htm
DOI: https://dx.doi.org/10.4254/wjh.v14.i9.1840

TO THE EDITOR

We have read with great attention and particular interest the review by Dhaliwal A *et al*[1] entitled "Impact of the use of positive organs for hepatitis C in liver transplantation: Analysis of the database of the United Network for Organ Sharing". The study noted that the survival rates of hepatitis C virus (HCV)-positive donors and -negative recipients following liver transplantation (LT) are comparable to those of HCV-negative donors and recipients. On the other hand, direct-acting antiviral (DAA) therapies have a nearly 100% effectiveness rate in the treatment of HCV infection[2-4].

The proportions of HCV-positive waiting list patients and HCV-positive LT recipients decreased by 8.2% and 7.6%, respectively, between 2006 and 2016[5]. HCV recurrence post-LT was the most frequent reason for graft failure prior to the availability of DAA treatment and significantly decreased recipient survival in patients with HCV positivity compared to HCV-negative patients[6,7]. This HCV recurrence significantly impacted the allocation of HCV-positive donors, severely underutilizing these organs, especially in HCV-negative recipients. Due to the strong potency and low risk of side effects of this new generation of DAAs, there is an increasing propensity to use organs from HCV-positive donors, especially those with high virus loads[8,9]. The United Network for Organ Sharing (UNOS) database was utilized in this study to compare the survival rates of HCV-negative donors and recipients with those of HCV-positive donors and recipients[10].

The authors of this intriguing study used information from the UNOS registry, which includes information on every transplant in the country. Records from April 1, 2014, in which the donor and receiver were both at least 18 years old and had a positive HCV status, were the only ones eligible for the study. Although some recipients appeared many times in the data set, the analysis for this study was limited to the first transplant recorded for each patient using a data element that tracked the number of prior transplants for each recipient. The primary outcome was overall survival time as of the most recent patient follow-up on September 7, 2018, with death being indicated by the composite indicator of death and censoring for those who did not die throughout the trial period. The authors used log-rank tests and group survival estimates at various time points of monitoring after transplantation to compare overall survival between groups. The investigation comprised a total of 24512 transplants, with 253 people who received transplants from positive donors to negative recipients. The duration of cold ischemia was comparable across all groups. Following cirrhosis caused by HCV, cirrhosis caused by non-alcoholic steatohepatitis, and hepatoma as the most frequent primary diagnoses were alcoholic cirrhosis/acute alcoholic hepatitis. Looking at survival rates at 1-year, 2-year, and 3-year intervals revealed that the particular group with a positive donor and negative recipient had lower survival rates than the other three groups (negative donor and positive recipient; positive donor and negative recipient; positive donor and positive recipient) which were all close together.

HCV-positive recipients or people with fulminant hepatic failure were the main beneficiaries of primary biliary cirrhosis among HCV-positive donors. However, due to clinical and ethical considerations, there is still reticence to use organs from HCV-positive donors in HCV-positive recipients. In a study of 99 recipients of liver grafts from HCV-positive donors, Lai *et al*[11] found that HCV-positive donor graft recipients had significantly higher unadjusted rates of advanced fibrosis at 1 and 3 years than HCV-positive donor graft recipients. According to Khapra *et al*'s study of 29 HCV-positive donor liver graft recipients, they exhibited significantly greater fibrosis and a faster rate of development[12].

However, studies of single-center experiences and large public databases, such as UNOS and the Scientific Registry of Transplant Receivers, have shown that recipients of livers from HCV-positive and HCV-negative donors had the same results since the introduction of DAAs[13-15].

It should be mentioned that there is currently no recognized procedure. The people who participated in this research were in preventive therapy. The information was obtained from a large population-

based study based on a well-known UNOS database that included many Americans. The authors concluded that the survival rates of HCV-positive donors and recipients and HCV-negative donors and receivers are identical. More studies should be carried out in the future in more national and international transplant registries to confirm these points.

FOOTNOTES

Author contributions: Muro M and Legaz I designed the research, performed the research, and wrote and revised the letter.

Conflict-of-interest statement: There is no conflict of interest to disclose.

Country/Territory of origin: Spain

ORCID number: Isabel Legaz 0000-0002-1140-4313; Manuel Muro 0000-0001-9987-0994.

S-Editor: Wang LL
L-Editor: Wang TQ
P-Editor: Wang LL

REFERENCES

1 **Dhaliwal A**, Dhindsa B, Ramai D, Sayles H, Chandan S, Rangray R. Impact of utilization of hepatitis C positive organs in liver transplant: Analysis of united network for organ sharing database. *World J Hepatol* 2022; **14**: 984-991 [PMID: 35721288 DOI: 10.4254/wjh.v14.i5.984]
2 **Legaz I**, Bolarin JM, Campillo JA, Moya RM, Luna A, Osuna E, Minguela A, Sanchez-Bueno F, Alvarez MR, Muro M. Pretransplant ascites and encephalopathy and their influence on survival and liver graft rejection in alcoholic cirrhosis disease. *Arch Med Sci* 2021; **17**: 682-693 [PMID: 34025838 DOI: 10.5114/aoms.2018.80651]
3 **Legaz I**, Navarro-Noguera E, Bolarín JM, García-Alonso AM, Luna Maldonado A, Mrowiec A, Campillo JA, Gimeno L, Moya-Quiles R, Álvarez-López Mdel R, Minguela Puras A, Miras M, Sánchez-Bueno F, Muro M. Epidemiology, Evolution, and Long-Term Survival of Alcoholic Cirrhosis Patients Submitted to Liver Transplantation in Southeastern Spain. *Alcohol Clin Exp Res* 2016; **40**: 794-805 [PMID: 27012317 DOI: 10.1111/acer.13013]
4 **Charlton M**, Seaberg E, Wiesner R, Everhart J, Zetterman R, Lake J, Detre K, Hoofnagle J. Predictors of patient and graft survival following liver transplantation for hepatitis C. *Hepatology* 1998; **28**: 823-830 [PMID: 9731579 DOI: 10.1002/hep.510280333]
5 **Kim WR**, Lake JR, Smith JM, Schladt DP, Skeans MA, Harper AM, Wainright JL, Snyder JJ, Israni AK, Kasiske BL. OPTN/SRTR 2016 Annual Data Report: Liver. *Am J Transplant* 2018; **18** Suppl 1: 172-253 [PMID: 29292603 DOI: 10.1111/ajt.14559]
6 **Jacobson IM**, Dore GJ, Foster GR, Fried MW, Radu M, Rafalsky VV, Moroz L, Craxi A, Peeters M, Lenz O, Ouwerkerk-Mahadevan S, De La Rosa G, Kalmeijer R, Scott J, Sinha R, Beumont-Mauviel M. Simeprevir with pegylated interferon alfa 2a plus ribavirin in treatment-naive patients with chronic hepatitis C virus genotype 1 infection (QUEST-1): a phase 3, randomised, double-blind, placebo-controlled trial. *Lancet* 2014; **384**: 403-413 [DOI: 10.1016/s0140-6736(14)60494-3]
7 **Gordon SC**, Muir AJ, Lim JK, Pearlman B, Argo CK, Ramani A, Maliakkal B, Alam I, Stewart TG, Vainorius M, Peter J, Nelson DR, Fried MW, Reddy KR; HCV-TARGET study group. Safety profile of boceprevir and telaprevir in chronic hepatitis C: real world experience from HCV-TARGET. *J Hepatol* 2015; **62**: 286-293 [PMID: 25218788 DOI: 10.1016/j.jhep.2014.08.052]
8 **Kamal SM**. Hepatitis C Treatment in the Era of Direct-Acting Antiviral Agents: Challenges in Developing Countries. *Hepat C Dev Ctries Curr Futur Challenges* 2018; 209-246 [DOI: 10.1016/b978-0-12-803233-6.00017-5]
9 **Pol S**, Parlati L, Jadoul M. Hepatitis C virus and the kidney. *Nat Rev Nephrol* 2019; **15**: 73-86 [PMID: 30455426 DOI: 10.1038/s41581-018-0081-8]
10 **View data reports - OPTN**. [cited 20 April 2022]. Available from: https://optn.transplant.hrsa.gov/data/view-data-reports/
11 **Lai JC**, O'Leary JG, Trotter JF, Verna EC, Brown RS Jr, Stravitz RT, Duman JD, Forman LM, Terrault NA; Consortium to Study Health Outcomes in HCV Liver Transplant Recipients (CRUSH-C). Risk of advanced fibrosis with grafts from hepatitis C antibody-positive donors: a multicenter cohort study. *Liver Transpl* 2012; **18**: 532-538 [PMID: 22271671 DOI: 10.1002/Lt.23396]
12 **Khapra AP**, Agarwal K, Fiel MI, Kontorinis N, Hossain S, Emre S, Schiano TD. Impact of donor age on survival and fibrosis progression in patients with hepatitis C undergoing liver transplantation using HCV+ allografts. *Liver Transpl* 2006; **12**: 1496-1503 [PMID: 16964597 DOI: 10.1002/lt.20849]

13 **Watt KD**, Dierkhising R, Heimbach JK, Charlton MR. Impact of sirolimus and tacrolimus on mortality and graft loss in liver transplant recipients with or without hepatitis C virus: an analysis of the Scientific Registry of Transplant Recipients Database. *Liver Transpl* 2012; **18**: 1029-1036 [PMID: 22641474 DOI: 10.1002/lt.23479]

14 **Northup PG**, Argo CK, Nguyen DT, McBride MA, Kumer SC, Schmitt TM, Pruett TL. Liver allografts from hepatitis C positive donors can offer good outcomes in hepatitis C positive recipients: a US National Transplant Registry analysis. *Transpl Int* 2010; **23**: 1038-1044 [PMID: 20444239 DOI: 10.1111/j.1432-2277.2010.01092.x]

15 **Cholankeril G**, Li AA, March KL, Yoo ER, Kim D, Snyder H, Gonzalez SA, Younossi ZM, Ahmed A. Improved Outcomes in HCV Patients Following Liver Transplantation During the Era of Direct-Acting Antiviral Agents. *Clin Gastroenterol Hepatol* 2018; **16**: 452-453 [PMID: 28838786 DOI: 10.1016/j.cgh.2017.08.020]

Published by **Baishideng Publishing Group Inc**
7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA
Telephone: +1-925-3991568
E-mail: bpgoffice@wjgnet.com
Help Desk: https://www.f6publishing.com/helpdesk
https://www.wjgnet.com