

Hepatitis E prevalence in indigenous communities from Western Brazilian Amazon

To the Editor:

We read with great interest the systematic review and meta-analysis by Li et al.¹ about the global epidemiology of HEV infection. Li et al.¹ found a global anti-HEV IgG seroprevalence of 12.47% and anti-HEV IgM seroprevalence of 1.47%. In Brazil, ten studies were included and pooled anti-HEV IgG prevalence was 6.39%. This high prevalence could be the result of geographical area or assays used in the studies of this review. High prevalence of HEV was found in special groups, such as, HIV and haemodialysis individuals. However, the review did not evaluate HEV prevalence in indigenous communities that could be more exposed to infection because of the poor sanitation conditions. Thus, we conducted a study about the prevalence of HEV in indigenous population in Brazil.

Anti-HEV prevalence among indigenous population from Western Brazilian Amazon was compared to urban area of the same location. Indigenous were from Apinajé ethnias and are situated in northern region of Tocantins and Araguaia rivers in the Western Brazilian Amazon. This population include about 1409 indigenous people divided in 15 villages in 1500 km². We tested a total of 681 individuals for anti-HEV IgG and IgM using commercial enzyme immunoassays (Mikrogen GMBH, Neuried, Germany).

Global HEV prevalence was 0.15%. Both markers (anti-HEV IgG and anti-HEV IgM) were more prevalent in the indigenous population

TABLE 1 Hepatitis E prevalence in indigenous individuals compared to urban population from Western Brazilian Amazon

	Number tested (n = 681)	anti-HEV IgG +	anti-HEV IgM+
Number of samples	681 (100%)	1 (0.15%)	1 (0.15%)
Gender			
Female	373 (54.77%)	1 (0.26%)	1 (0.26%)
Male	308 (45.22%)	0 (0.0%)	0 (0.0%)
Age group (years)			
≤30	415 (60.93%)	1 (0.24%)	1 (0.24%)
>30	266 (39.06%)	0 (0.0%)	0 (0.0%)
Type of population			
Indigenous (Rural Area)	506 (74.30%)	1 (0.19%)	1 (0.19%)
Non-Indigenous (Urban area)	175 (25.59%)	0 (0.0%)	0 (0.0%)

Institution at which the work was performed: Oswaldo Cruz Foundation

© 2020 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd

(0.2%) compared to urban population (0%) of the same area (Table 1). Li et al.¹ also found higher prevalence in rural area compared to the urban site. Rural area usually has low sanitation condition and people usually have few years of education. Both of these conditions are considered high risk factors for HEV infection.

HEV prevalence in our cohort is lower than observed in general population from Amazon (5.9% for anti-HEV IgG and 3.4% anti-HEV IgM).² There is a lack of information regarding prevalence of HEV in aboriginal communities. Wong et al.³ found a prevalence of 5.9% of anti-HEV IgG among aboriginal in Malaysia. The low prevalence observed in Western Brazilian Amazon could be related to the absence of consumption of processed pork products that have been associated to HEV infection.⁴

In conclusion, hepatitis E prevalence is low in indigenous population of Western Brazilian Amazon compared to global prevalence observed in Brazil. This result highlights the difference of HEV prevalence according to geographical area and population studied in the same country.

ETHICS APPROVAL STATEMENT

Study was approved by Research Ethics Committee and the National Research Ethics Commission (CAAE: 32789914.6.0000.5248). Written informed consent was obtained from all individual participants included in the study.

ACKNOWLEDGEMENTS

The authors thank Juliana Custódio Miguel and Elisangela Ferreira da Silva for assistance in blood analysis and Tocantins Health Secretary for the assistance in blood sample collection.

CONFLICT OF INTEREST

The authors declare that they have no competing interests" in this section.

FUNDING INFORMATION

This research was supported by the Fundação de Amparo a Pesquisa do Estado do Rio de Janeiro (FAPERJ), Brazilian National Council of Technological and Scientific Development (CNPq), and the Oswaldo Cruz Foundation (FIOCRUZ). They had no role in designing the study and collection, analysis, and interpretation of data and in writing the manuscript.



Livia Melo Villar¹ 

Flavio Augusto Pádua Milagres²

Julia Trece Marques¹

Vanessa Salete de Paula³ 

¹Laboratory of Viral Hepatitis, Oswaldo Cruz Institute,
FIOCRUZ, Rio de Janeiro, Brazil

²Federal University of Tocantins, UFT, Tocantins, Brazil

³Molecular Virology Laboratory, Oswaldo Cruz Institute,
FIOCRUZ, Rio de Janeiro, Brazil
Email: lvillar@ioc.fiocruz.br

ORCID

Livia Melo Villar  <https://orcid.org/0000-0001-7644-8969>

Vanessa Salete de Paula  <https://orcid.org/0000-0002-6314-754X>

REFERENCES

1. Li P, Liu J, Li Y, et al. The global epidemiology of hepatitis E virus infection: a systematic review and meta-analysis. *Liver Int.* 2020;40(7):1516–1528. <https://doi.org/10.1111/liv.14468>
2. Souza AJS, Malheiros AP, Sarmiento VP, et al. Serological and molecular retrospective analysis of hepatitis E suspected cases from the Eastern Brazilian Amazon 1993–2014. *Rev Soc Bras Med Trop.* 2019;25(52):e20180465. <https://doi.org/10.1590/0037-8682-0465-2018>
3. Wong LP, Alias H, Choy SH, et al. The study of seroprevalence of hepatitis E virus and an investigation into the lifestyle behaviours of the aborigines in Malaysia. *Zoonoses Public Health.* 2020;67(3):263–270. <https://doi.org/10.1111/zph.12681>
4. Said B, Ijaz S, Chand MA, Kafatos G, Tedder R, Morgan D. Hepatitis E virus in England and Wales: indigenous infection is associated with the consumption of processed pork products. *Epidemiol Infect.* 2014;142(7):1467–1475. <https://doi.org/10.1017/S0950268813002318>