

TRANSFUSION-TRANSMITTED VIRUS (TTV) IN BRAZIL. PRELIMINARY REPORT

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SUMMARY

TTV is a recently discovered DNA virus, isolated from a patient with post-transfusion hepatitis of unknown etiology by Japanese researchers. In the present study, we evaluated the presence of TTV among chronic liver diseases patients in São Paulo and Pará states, representing two geographically distinct Brazilian regions. TTV DNA was found in 21/105 (20%) and 9/20 (45%) cases from São Paulo and Pará States, respectively. DNA sequence data confirmed the presence of TTV genotypes 1a and 2a, as well as other genotypes not yet described. In conclusion, TTV is present in chronic liver diseases cases from Southeast and North Brazil. However, further studies involving healthy populations are necessary before establishing any causal relationship among TTV and human hepatitis.

KEYWORDS: Hepatitis non A-E; TTV; Viral hepatitis; Chronic liver diseases; Genotypes

TTV is a recently discovered DNA virus, isolated from a patient with post-transfusion hepatitis of unknown etiology by Japanese researchers in 1997⁵. TTV has been characterized as a non-enveloped virus, with particle density of 1.26 g/cm³ and single strand DNA genome. Although no significant amino acid similarity has been found with any other sequences, TTV resembles Parvoviruses in its general features⁶. TTV has been found in 46% and 47% of Japanese patients with fulminant and chronic non A-G hepatitis, respectively, but also in 12% of blood donors⁶. Two different studies in the United Kingdom found TTV in 1.9% of non-remunerated blood donors⁷, 19% of non A - G fulminant hepatitis, 25% of chronic liver diseases patients and 10% of normal controls⁴. These data strongly favored the hypothesis of the global distribution of TTV, but raised doubts about its pathogenicity².

Two major genotypes divided in subtypes have been initially described (1a, 1b, 2b and 2a), but evidences from other new genotypes have been found in one study performed in the United Kingdom⁷.

In the present study, we evaluated the presence of TTV among chronic liver diseases patients in two Brazilian states representing geographically distinct regions (more than 2,000 km away): São Paulo State, an industrialized and highly populated state in Southeastern Brazil, and Pará State, located in Northern Brazil, comprising most of the Eastern Amazon Basin.

The frequencies of TTV DNA are shown in the Table 1.

TABLE 1
TTV DNA in different Brazilian populations.

Population	Origin	N	TTV (+)
Chronic liver diseases non A-E	S. Paulo	82	14 (17.1 %)
Chronic hepatitis C	S. Paulo	18	5 (27.8%)
Chronic hepatitis B	S. Paulo	5	2 (40.0%)
Chronic liver diseases	Pará	20	9 (45.0 %)

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Sequences from 4 cases from São Paulo State have demonstrated TTV genotypes 1a and 2a. Sequences from 2 other cases could not be classified in any of these two genotypes, suggesting that other new genotypes are also present in Brazil.

To our knowledge, this is the first report of TTV detection in South America, corroborating to the hypothesis of its worldwide presence, adding to previous findings from Asia^{5,6}, Europe^{4,7}, Oceania³ and North America¹.

In conclusion, TTV is present in chronic liver diseases cases from Southeast and North Brazil, including HCV and HBV positive cases. However, further studies involving healthy populations are necessary before establishing any causal relationship among TTV and human hepatitis.

RESUMO

Vírus Transmitido por Transusão (TTV) no Brasil. Nota prévia

TTV é um vírus DNA recentemente descoberto no Japão a partir de um paciente portador de hepatite pós-transfusional de origem desconhecida. Neste estudo, avaliamos a presença deste vírus em pacientes com hepatopatias crônicas dos estados de São Paulo e do Pará, representando duas regiões geograficamente diferentes. O DNA do TTV foi encontrado em 21/105 (20%) e 9/20 (45%) dos casos de São Paulo e do Pará, respectivamente. O seqüenciamento do DNA amplificado confirmou a presença dos genótipos 1a e 2a, bem como de outros genótipos ainda não descritos até o momento. Em conclusão, TTV está presente em casos de hepatopatias crônicas do Sudeste e do Norte do Brasil. Por outro lado, maiores estudos ainda são necessários antes de se estabelecer relação causal entre o TTV e a hepatite em seres humanos.

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