

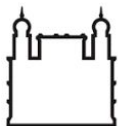
Webinário

Vírus linfotrópico de células T humanas (HTLV): a ameaça silenciosa e suas manifestações neurológicas

30 Nov, 2023, 13:00 GMT/10:00 BR/AR

Registre-se

Tradução simultânea
PT-ESP-ING



Ministério da Saúde

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Panel

Chair: Augusto César Penalva de Oliveira - Supervising Physician, Neurology Medical Team, Emílio Ribas Infectious Diseases Institute, Brazil

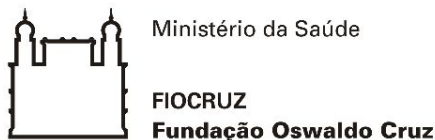
Steven Jacobson - Senior Investigator, Viral Immunology Section, Neuroimmunology and Neurovirology Division (NND), National Institutes of Health (NIH), USA

Lucia Brito - Neurophysiologist, Reference Center for the Care of Patients with Demyelinating Diseases, Restauração Hospital, Ministry of Health, Brazil

Carlos Pardo - Director, Johns Hopkins Myelitis & Myelopathy Center, Baltimore, Maryland, USA

Clarice Neuenschwander - Senior Researcher at the Laboratory of Virology and Experimental Therapy, Fiocruz Pernambuco, Fiocruz, Brazil.

Cristiane Campello Bresani – Senior Researcher at the Laboratory of Virology and Experimental Therapy, Fiocruz Pernambuco, Fiocruz, Brazil.



Resources

- <https://portal.fiocruz.br/en>
- <https://fiocruz.tghn.org/>
- <https://lac.tghn.org/>
- <https://www.instagram.com/HTLVBrasil/>
- <https://www.gov.br/aids/pt-br/assuntos/ist/htlv>
- <https://fiocruz.tghn.org/health-topics/neuroinfeccoes/grupo-neuroinfeccoes/>



Laboratory diagnosis of HTLV infection: techniques & challenges



Dr Clarice Neuenschwander, PhD

Laboratory of Virology, Oswaldo Cruz Foundation, Brazilian Ministry
of Health, Brazil

Introduction

Brazil is endemic but the actual prevalence is unknown



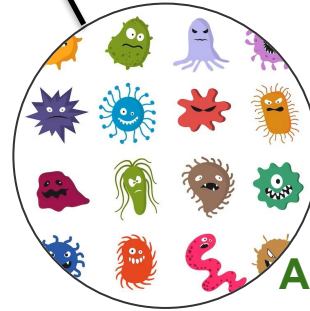
Stigmatizing disease



Haematogenous transmission



Disabling chronic diseases



Associated coinfections



There is no rapid tests



There is no antiviral drugs



There is no vaccines

Transmission



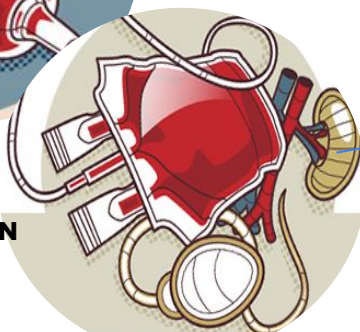
**Mother to Child
transmission (vertical or
by breastfeeding)**



Sexual transmission



Sharing needles



**Blood and organs
transplantations**

***In Brazil, screening for blood donors became mandatory in 1993, and for and organs/tissue donors, in 2009.**

(VERDONCK et al., 2007; TAKATSUKI, 2005; GESSAIN et al., 1985; Guia Epidemiológico | Secretaria de Vigilância em Saúde | Ministério da Saúde, 2021).

WHY testing for HTLV infection?

Early diagnosis is critical to:

- Stop ways of transmissions in community and within families
- Advise infected people and family, focusing in the life quality
- Identify HTLV associated comorbidities, to provide an Integral clinical management
- Knowledge the actual prevalence and distribution of HTLV infection

WHO should test for HTLV?



Pregnant women



Blood, milk and organ/tissue donors



Organ receptors



Family and sexual partner of PLWHTLV



Offspring of women with HTLV



People with HTLV associated diseases



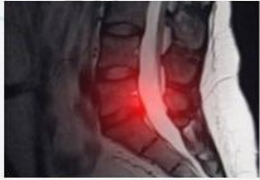
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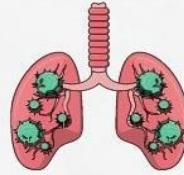
WHO should test for HTLV?



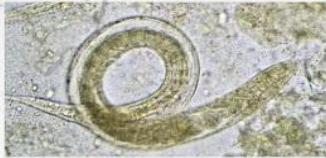
Differential diagnosis
of myopathies



People with sexual and
hematogenous infections



People with
tuberculosis



Patients with
*Strongyloides
stercoralis*



Patients with
lymphomas or
leukemias



Accidents with blood or
other biological material
and drug addicts

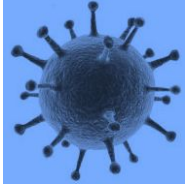


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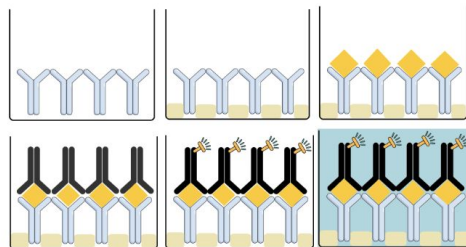
HOW to do the HTLV infection diagnosis?

Step I - Screening Tests

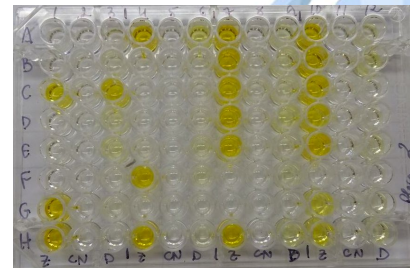
Step II - Confirmatory Tests and tests to discriminate the viral type

Step I - Screening Tests

- ELISA (Enzyme Immunoassay) ou CLIA (Chemiluminescence Immunoassay)
- Antibodies against recombinant proteins of HTLV-1/2 envelop (gp46 e gp21)
- High Sensibilities and variable Specificities (92-99,5%)
- False positive and inconclusive results rise costs
- They don't discriminate the viral type, and so need a confirmatory test (test sample pools is a strategy)



ELISA



Step II - Confirmatory Tests

SEROLOGICAL

MOLECULAR

- **SEROLOGICAL**

- Western Blot
- Line Immunoassay

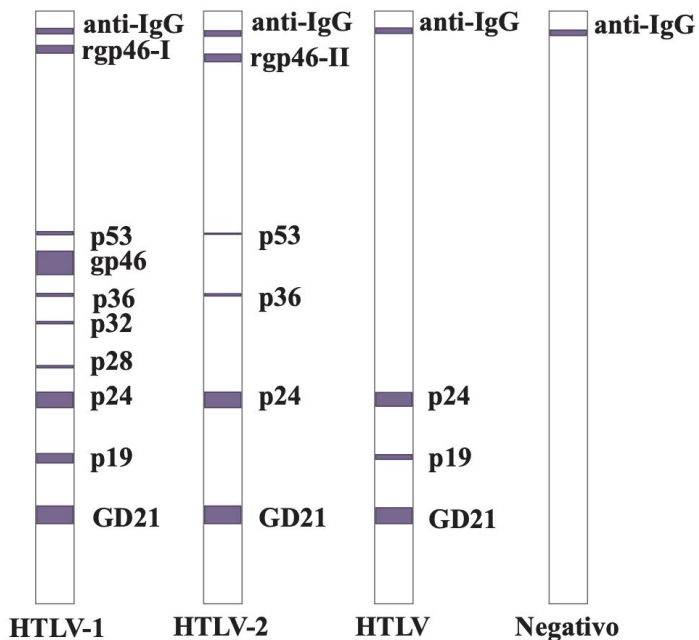
Detect antibodies against:

- rgp46-I of HTLV-1
- rgp46-II of HTLV-2
- GD21 of bot virus

Cost higher than molecular tests

Interpretacion of WB

RESULTADO	BANDAS ENCONTRADAS
Positivo para HTLV-1	p19 e/ou p24 + GD21 + rgp 46-I
Positivo para HTLV-2	p19 e/ou p24 + GD21 + rgp 46-II
Positivo para HTLV-1 e HTLV-2	p19 e/ou p24 + GD21 + rgp 46-I + rgp 46-II
Positivo para HTLV (não tipado)	p19 e p24 + GD21
Indeterminado	Qualquer combinação de bandas que não as descritas acima
Negativo	Nenhuma reatividade



Fonte: DCCI/SVS/MS.

Step II - Confirmatory Tests

• MOLECULAR

- Detect pro-viral DNA integrated in white blood cells of host genome

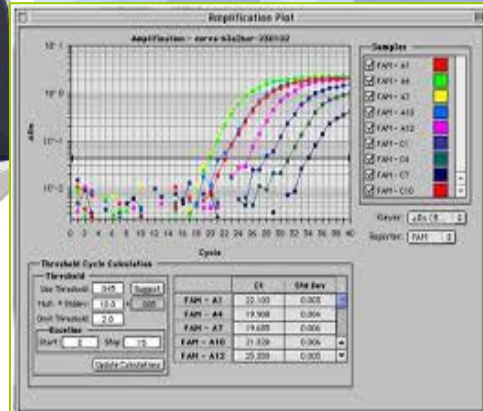
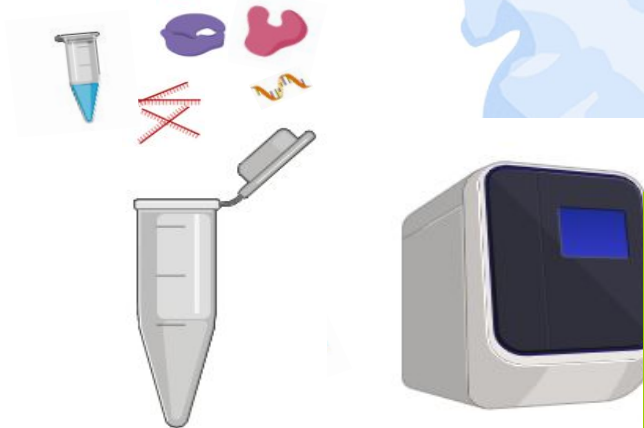
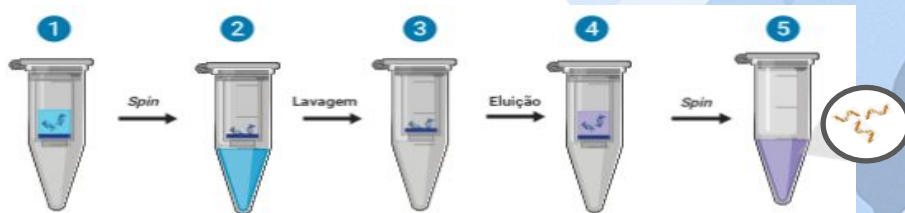
- High Specificity and Sensibility

- PCR (qPCR, nPCR, LAMP)

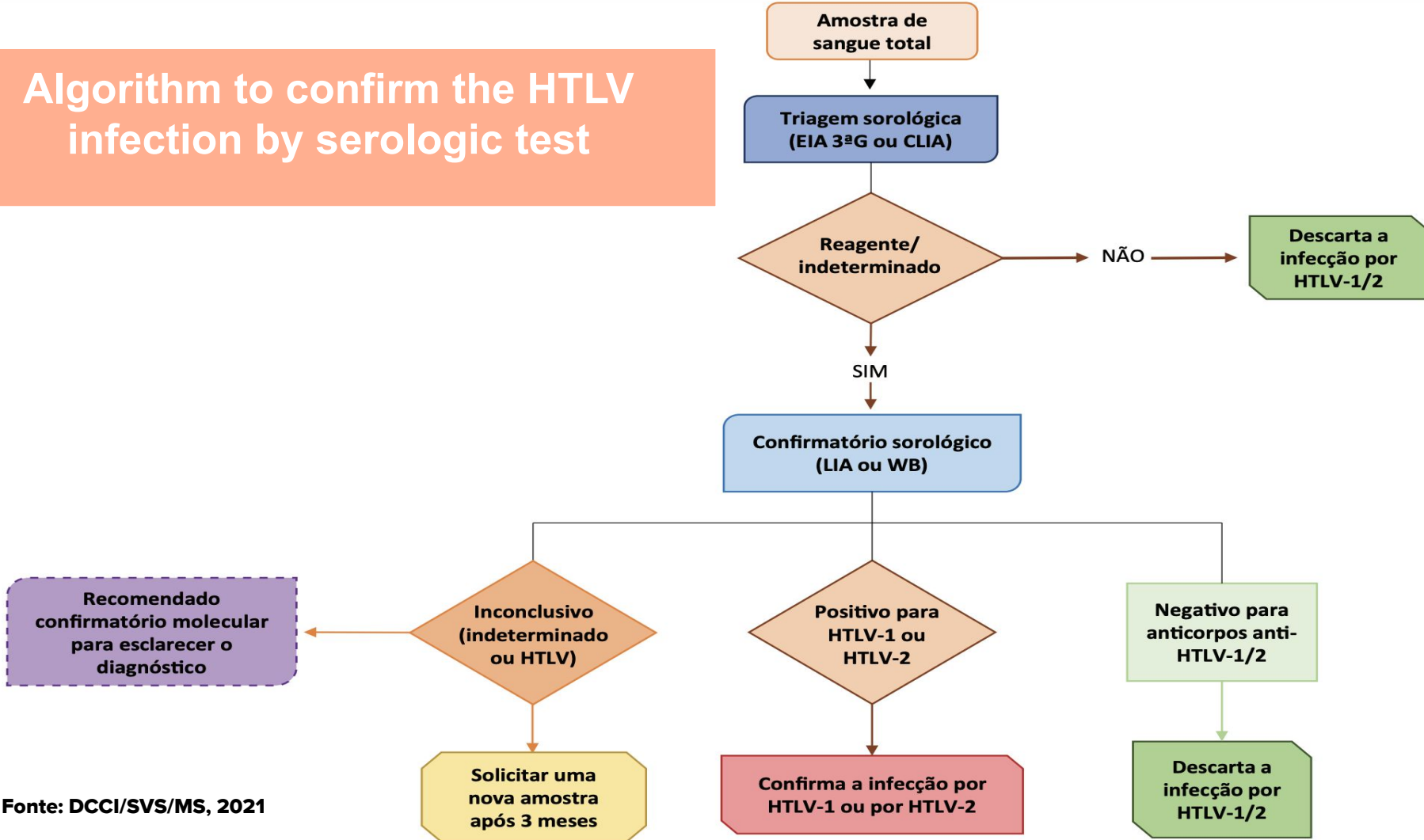
- qPCR can be used for qualitative diagnosis or to quantify pro-viral burden

- Protocols are *in house* (i.e. clinically unvalidated)

- Useful whe WB is inconclusive and in children under 18 months



Algorithm to confirm the HTLV infection by serologic test

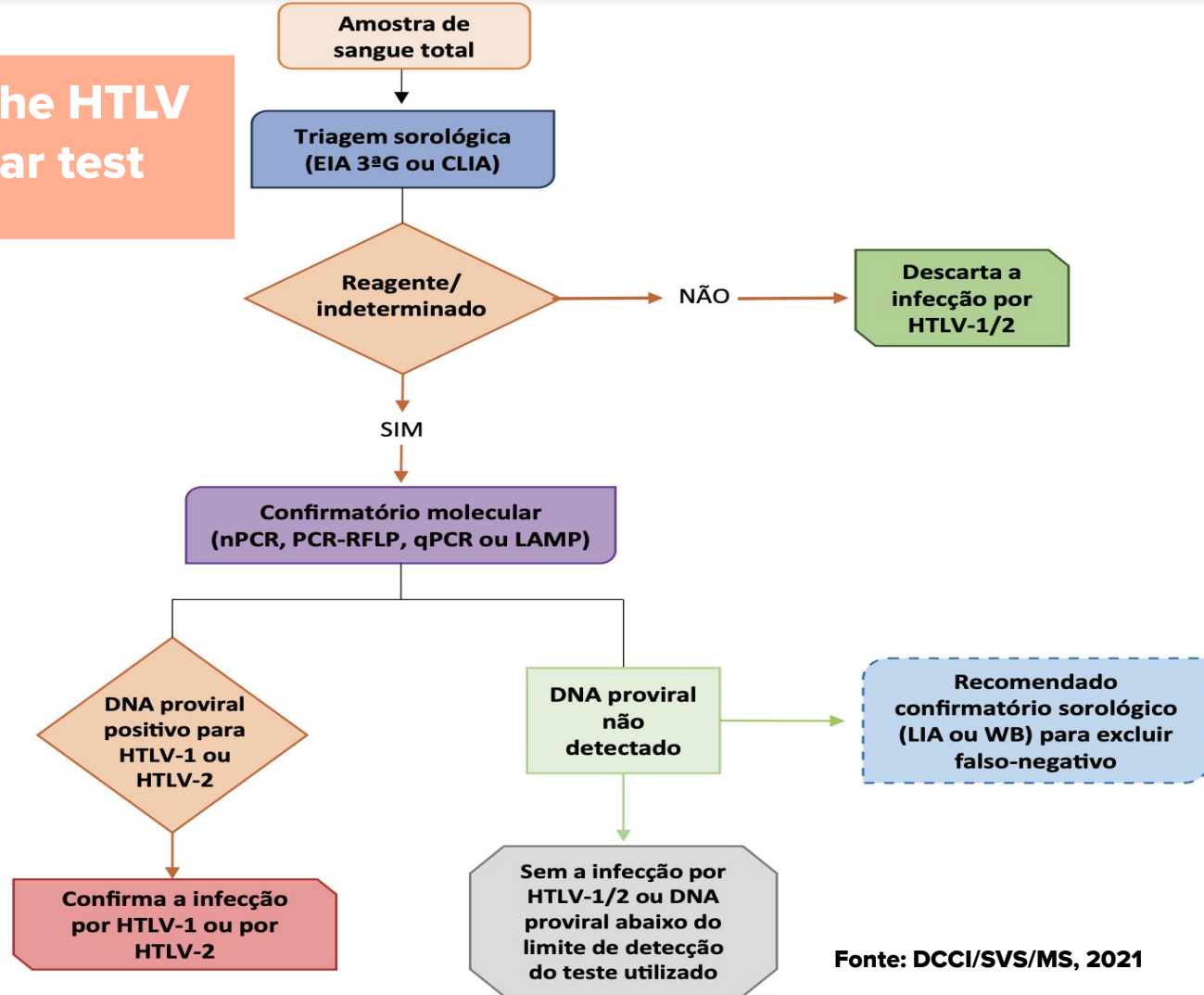


When results of WB may be inconclusive

- Seroconversion period - Immunologic window (around 90 days from infection)
- Cepas of HTLV different from that used to manufacture the commercial tests
- Defective viral particles
- Viral mutations in gene regions which codify the structural or regulator ptns (mainly *env* ptns)
- Low pro-viral burden, mainly in HTLV-2 infections

Fonte: DCCI/SVS/MS, 2021; CAMPOS et al., 2017, 2020; JACOB et al., 2008, 2009; KURAMITSU et al., 2017; MARTINS et al., 2010; MORIMOTO et al., 2005)

Algorithm to confirm the HTLV infection by molecular test



Calenges

- Rise knowledge about HTLV and associated diseases among the general population and healthcare professionals
- Train healthcare professionals to wellcome, advice and conduct cases
- Rise investment in clinical and basic research
- Rapid tests: in Brazil, there is 2 in validation phase, and other one in developing phase (our research group)
- Public policies to test broadly in prenatal routines: Brazil had recent advances in national guidelines, but is still not routinely testing pregnant women

Motivacion - Love - Guarantee Integral Care to PLWHTLV



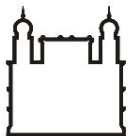
**XVI International Symposium on
HTLV in Brazil.
João Pessoa, Paraíba, Oct 2023**



Thank you!

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