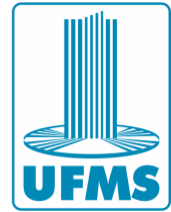




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Programa de Pós-Graduação em Doenças Infecciosas e Parasitárias – PPGDIP/UFMS

PROVA DE LÍNGUA INGLESA – 22 de abril de 2020 (Edital N° 2 e 4/2020 - PPGDIP/UFMS)

Considerando o texto abaixo, elaborado com base em artigos científicos, use a plataforma *Google Docs* para **responder em PORTUGUÊS ou INGLÊS as questões de 1 a 10.**

Link para acesso ao *Google Docs*, onde está o formulário com as questões e preenchimento das respostas será enviado pela sala virtual de reunião do *Google Hangouts Meet*.

1 Since Carlos Chagas discovered American trypanosomiasis in 1909, a disease that
2 subsequently received his name, knowledge about the epidemiology of the disease and
3 its control has evolved in three well-defined phases: the discovery phase, the phase of
4 knowledge dissemination and the phase of applying this knowledge to the control and
5 surveillance of human infection. The discovery phase corresponds Chagas's pioneering
6 studies of the parasite *Trypanosoma cruzi* in the arthropod and vector *Conorhinus*
7 *megistus* (currently known as *Panstrongylus megistus*) and in experimentally infected
8 laboratory animals and his description of the first acute cases of the disease.

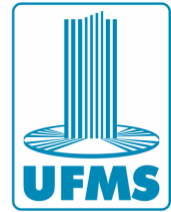
9 Few yeas after, in 1912, Carlos Chagas discovered that the armadillo (*Dasypus*
10 *novencinctus*) is a wild reservoir for *T. cruzi*. Concomitantly, in the same ecotope, he found
11 the arthropod *Triatoma geniculata* (currently known as *Panstrongylus geniculatus*) infected
12 with the parasite, thereby defining the wild cycle of Chagas disease and the insect as a
13 vector.

14 Chagas disease originated millions of years ago as an enzootic infection of wild
15 animals and began to be transmitted to humans as an anthroozoonosis when man
16 invaded wild ecotopes. Some researchers established that Chagas disease has existed
17 as early as 7000 B.C. (before Christ) when Aufderheide et al. in their study of exhumed
18 mummies from archaeological sites in both Peru and Chile, revealed a carbon dating of



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19 their tissues at approximately 7000 B.C., and confirmed by polymerase chain reaction
20 (PCR) of *T. cruzi*'s kinetoplast DNA. Thanks to the arid desert of that region which
21 preserved the desiccated soft tissue, these researchers confirmed that the disease was
22 present in Latin American, approximately 9,000 years ago, where *T. cruzi* infections in
23 humans as like many other animals, acting as hosts.

24 While evidence of human infection has been found in mummies up to 9,000 years
25 old, endemic Chagas disease became established as a zoonosis only in the last 200-300
26 years, as triatomines adapted to domestic environments. It is estimated that 15-16 million
27 people are infected with *Trypanosoma cruzi* in Latin America, and 75-90 million are
28 exposed to infection.

29 The actual theory is that humans populated the western coast of South America at
30 an estimated 9,500 years ago, and by doing so, became part of the sylvatic cycle of
31 Chagas disease. Whereas, the domestic cycle developed much after, when civilization
32 developed along with the foundation of urban settlement. Andean population also
33 domesticated rodents in their home for consumption and rituals attracting hematophagous
34 insects like *T. cruzi* vectors. The *Triatoma infestans* species (one of the vectors) found
35 optimum living places in wattle and daub houses, where they can feast on blood from both
36 humans and domestic animals.

37 The geographical distribution of Chagas infection, including its reservoirs and its
38 vectors, extends from the Southern United States to Southern Argentina and Chile. Thus,
39 it covers all of the Americas, and 75-90 million people in this region are exposed to
40 infection. Control of Chagas disease must be undertaken by interrupting its transmission
41 by vectors and blood transfusions, improving housing and areas surrounding dwellings,
42 providing sanitation education for exposed populations and treating acute and recently
43 infected chronic cases. These measures should be complemented by surveillance and
44 primary, secondary and tertiary care.

45 A new epidemiological, economic, social and political problem has been created
46 with the internationalization of Chagas disease due to legal and illegal migration from the
47 endemic countries of Latin America to non-endemic countries in North America, Europe,



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48 Asia and Oceania, in particular the United States, Canada, Spain, France, Switzerland,
49 Japan, emerging Asian countries and Australia. These migrations have created new
50 epidemiological and public health problems for the countries that have received the
51 infected migrants. These problems include risks of transfusion and congenital
52 transmission, as well as a need for medical care for Chagas patients and additional
53 controls over blood banks in countries with little experience in this subject. On the other
54 hand, in addition to the medical, social and economic aspects, a political problem
55 regarding migration control has been created, since immigration is often necessary to
56 provide labour in more developed countries.

- 1) De acordo com texto, a partir da descoberta da doença de Chagas em 1909, fases bem definidas marcaram os avanços em relação aos conhecimentos adquiridos sobre a doença. Quais são essas fases? (1,0 ponto)

Resposta: a fase de descoberta, a fase de disseminação do conhecimento e a fase de aplicação desse conhecimento ao controle e vigilância da infecção humana.

Answer: the discovery phase, the phase of knowledge dissemination and the phase of applying this knowledge to the control and surveillance of human infection.

- 2) Explique, de acordo com o texto, qual foi o processo que culminou com a doença humana causada pelo *Trypanosoma cruzi*, a tripanossomíase americana? (1,0 ponto)

Resposta: A tripanossomíase americana ou doença de Chagas se originou milhões de anos atrás como uma infecção enzoótica de animais selvagens e começou a ser transmitida aos seres humanos como uma antropozoonose quando o homem invadiu ecótopos selvagens.

Answer: Chagas disease originated millions of years ago as an enzootic infection of wild animals and began to be transmitted to humans as an anthrozoosis when man invaded wild ecotopes.



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- 3) De acordo com o texto, qual foi a fonte (ou origem) dos materiais utilizados para os testes e exames que estimaram o tempo de existência da doença de Chagas em humanos? Onde esses materiais foram encontrados? E qual foi a técnica utilizada para a identificação da presença do protozoário nestes materiais? (1,0 ponto)

Resposta: (1, 2) tecidos de múmias exumadas de sítios arqueológicos no Peru e no Chile; (3) reação em cadeia da polimerase.

Answer: (1, 2) exhumed mummies tissues from archaeological sites in both Peru and Chile; (3) polymerase chain reaction.

- 4) Qual o provável fator que manteve viável durante tantos anos os materiais utilizados para os testes e exames que estimaram o tempo de existência da doença de Chagas em humanos? (1,0 ponto)

Resposta: o deserto árido da região que preservou os tecidos moles dessecados.

Answer: arid desert of that region which preserved the desiccated soft tissue.

- 5) De acordo com estimativas apresentadas no texto para a América Latina, quantas pessoas estão infectadas pelo *Trypanosoma cruzi* e quantas estão sob o risco de infecção por este protozoário? (1,0 ponto)

Resposta: Estima-se que 15 a 16 milhões de pessoas estejam infectadas com *Trypanosoma cruzi* e 75 a 90 milhões estejam expostas a infecções na América Latina.

Answer: it is estimated that 15-16 million people are infected with *Trypanosoma cruzi* in Latin America, and 75-90 million are exposed to infection.

- 6) Conforme apresentado no texto, quais foram os fatores que propiciaram e favoreceram a ocorrência do ciclo de transmissão doméstico do *Trypanosoma cruzi*? (1,0 ponto)



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Resposta: urbanização e domesticação de animais (especialmente roedores) que foram mantidos próximos às habitações humanas para consumo e rituais, atraindo insetos hematófagos como vetores do *T. cruzi*.

Answer: the domestic cycle developed when civilization developed along with the foundation of urban settlement, and also when rodents were domesticated for consumption and rituals, attracting hematophagous insects like *T. cruzi* vectors.

- 7) De acordo com o segundo texto, qual a área de ocorrência da doença de Chagas, incluindo casos humanos, vetores e animais reservatórios? (1,0 ponto)

Resposta: desde o sul dos Estados Unidos até sul da Argentina e Chile.

Answer: from the Southern United States to Southern Argentina and Chile.

- 8) De acordo com o segundo texto, quais devem ser as medidas de controle da doença de Chagas? (1,0 ponto)

Resposta: o controle da doença de Chagas deve ser realizado interrompendo sua (1) transmissão por vetores e (2) transfusões de sangue, (3) melhorando as habitações e as áreas próximas às residências, (4) fornecendo educação sanitária para populações expostas e (5) tratando casos crônicos agudos e recentemente infectados.

Answer: control of Chagas disease must be undertaken by (1) interrupting its transmission by vectors and (2) blood transfusions, (3) improving housing and areas surrounding dwellings, (4) providing sanitation education for exposed populations and (5) treating acute and recently infected chronic cases.

- 9) No texto são citados três vetores do *Trypanosoma cruzi* e um animal reservatório deste mesmo protozoário, quais são eles? (1,0 ponto)

Resposta: **vetores:** *Conorhinus megistus* (*Panstrongylus megistus*), *Triatoma geniculata* (*Panstrongylus geniculatus*), *Triatoma infestans*; **reservatório:** *Dasybus novencinctus*.

Answer: **vectors:** *Conorhinus megistus* (*Panstrongylus megistus*), *Triatoma geniculata* (*Panstrongylus geniculatus*), *Triatoma infestans*; **reservoir:** *Dasybus novencinctus*.



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Fundação Universidade Federal de Mato Grosso do Sul



10) De acordo com o texto, qual a causa do fenômeno descrito como internacionalização da doença de Chagas? (1,0 ponto)

Resposta: migração legal e ilegal dos países endêmicos da América Latina para países não endêmicos.

Answer: legal and illegal migration from the endemic countries of Latin America to non-endemic countries.