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EXAME DE PROFICIÊNCIA DE LEITURA EM LÍNGUA ESTRANGEIRA

DATA: 19/05/2013 HORÁRIO: das 8 às 11 horas

CADERNO DE PROVA

Idioma:
INGLÊS

Área de Pesquisa:
(1) CIÊNCIAS BIOLÓGICAS, CIÊNCIAS AGRÁRIAS E CIÊNCIAS DA SAÚDE

LEIA ATENTAMENTE AS INSTRUÇÕES

- ☑ Esta prova é constituída de um texto técnico-científico em língua estrangeira, seguido de 5 (cinco) questões abertas relativas ao texto apresentado.
- ☑ É permitido o uso de dicionário impresso, sendo vedados troca ou empréstimo durante a realização do Exame.
- ☑ As respostas deverão ser redigidas em português e transcritas para a **Folha de Respostas,** utilizando caneta esferográfica, **tinta preta** ou **azul, escrita grossa.**
- ☑ **A Folha de Respostas** será o único documento válido para correção, não devendo, portanto, conter rasuras.
- ☑ Será eliminado o candidato que se identificar em outro espaço além daquele reservado na capa da **Folha de Respostas** e/ou redigir as respostas com lápis grafite (ou lapiseira).
- ☑ Nenhum candidato poderá entregar o Caderno de Prova e a Folha de Respostas antes de transcorridos 60 minutos do início do Exame.
- ☑ Em nenhuma hipótese haverá substituição da **Folha de Respostas**.
- ☑ Ao encerrar a prova, o candidato entregará, obrigatoriamente, ao fiscal da sala, o Caderno de Prova e a Folha de Respostas devidamente assinada no espaço reservado para esse fim.

A Chagas disease epidemic is not likely in North America, but kissing bug bites do cause severe allergic reactions for some victims

By Rachel Nuwer | Monday, April 9, 2012 |

A freshly molted *Triatoma rubida*, the most common kissing bug species in much of western U.S. This bug has not completed cuticle hardening, therefore the dark parts of the integument are still red.

Transmitted by bloodsucking kissing bugs, tropical Chagas disease—which afflicts millions in Central and South America—may affect more people in the U.S. than previously thought. Although doctors officially have recorded only seven cases of new human infections in North America, a new study found that five of 13 kissing bugs collected from California and Arizona had bitten a human host—and many of the bugs they collected were infected with Chagas.

Chagas, aka American trypanosomiasis, is a cryptic foe. After a person becomes infected, early symptoms—fever, a swollen eye—may be mistaken for any number of other ailments. The disease earns its moniker, the "silent killer," from its tendency to lie dormant in a person's system for years, even decades, until striking the victim down, usually through sudden heart or digestive failure.

Currently, the U.S. is relatively unaffected by Chagas transmission—but the new study gives researchers pause. "The dogma is that bugs and humans are quite separate in the U.S.," says Patricia Dorn, a molecular parasitologist at Loyola University New Orleans. "But now it seems that contact is not as rare as we thought," she says.

To investigate the threat of Chagas disease in the U.S., Dorn and colleagues collected kissing bugs in California and Arizona. Using a new analytical method, they identified which vertebrate species the bugs had parasitized by isolating fragments of DNA left over from blood meals. They cloned each DNA segment to separate out the species, such as chicken, wood rat and pig. They found that five of the insects contained human DNA, indicating they had bitten a person, and two of those insects had fed on two different people. Moreover, more than half the insects tested were infected with the Chagas parasite, the researchers reported in the journal *Emerging Infectious Diseases.* This is a high percentage of bugs infected with the parasite, Dorn says, although infection prevalence in bugs varies enormously in different locations. In endemic areas such as Guatemala, for example, researchers usually find 25 to 30 percent of kissing bugs to be infected. A 55 percent parasite infection prevalence is not unheard of, however, and Dorn found a similar infection prevalence in Louisiana in 2007.

"To find out so many bugs were in fact feeding on humans suggests that maybe there are a lot of cases we don't know about," says Lori Stevens, a biologist at the University of Vermont who developed the analytical method used in the study.

Trypanosoma cruzi, the protozoan responsible for Chagas disease, bides its time in a kissing bug's gut. Like cockroaches, kissing bugs are nocturnal insects that hide in cracks and crevices during daytime or when lights are on at night. After the lights go off, kissing bugs crawl into bed with the slumbering inhabitant and take a blood meal, often sucking around the victim's mouth or eyes. Unlike a mosquito, however, it is not the kissing bug's suction mouthparts that transmit disease—it is its feces that teem with *T. cruzi*. As the bug feeds it defecates; later the sleeping victim often scratches the bite, rubbing the feces into the open wound or into the eyes or mouth.

North America has so far been spared from this plague for a number of reasons: The 11 species of kissing bugs endemic to the U.S. South and Southwest tend to defecate after leaving their unwitting hosts, reducing the likelihood of spreading the parasite. They also tend to inhabit areas or wilderness where few humans live. Finally, in Central and South America, the disease is most prevalent in rural homes made of mud or covered by thatched roofs—such architecture, which makes perfect hideouts for the pests, is not typical of U.S. homes.

Puzzlingly, the insects containing human DNA that the researchers sampled were caught far from U.S. homes. "If we sampled in households where people were bitten, this wouldn't be surprising at all," says Stephen Klotz, chief of the infectious diseases section at the University of Arizona in Tucson and one of the study's authors. "But in this situation it was quite a surprise," he says.

Sheba Meymandi, a professor of medicine at the University of California Los Angeles, and the director of the Center of Excellence for the Diagnosis and Treatment of Chagas Disease who was not involved in the study, had a different take on the results. "I'm not surprised at the 38 percent," she says. "The bugs feed on humans in addition to other mammals, so I'm not surprised by the human DNA."

The U.S. prevalence may increase in the future. Observations indicate that the bugs might be changing some of their behaviors, Klotz says. Dogs and raccoons infected with Chagas disease are becoming more common, and the area occupied by infected dogs seems to be expanding north. In one community in Arizona it appears that some of the bugs are taking up residence in households, a strange and worrying development for a species that normally establishes itself in wilderness areas removed from suburban centers. As we encroach more and more on the kissing

bug's habitat and remove their usual blood meal sources, such as rodents, says Dorn, the insects—attracted by light—are moving into houses to tap new food sources.
Whereas a Chagas disease epidemic is not likely in North America, the insects do cause severe allergic reactions for some victims. There is also a chance that, as conditions become more favorable with milder winters, Mexican kissing bug species may migrate north, Dorn and Stevens point out, although currently this scenario is only speculation.
To avoid bites, Stevens says, people in infested areas should put up tight-fitting screens and get rid of woodpiles near their homes.
Around 300,000 people, mostly of immigrant background, already live with Chagas disease in the U.S., although awareness of the disease is still rudimentary among the public and physicians. Meymandi calls for an educational campaign among medical students and primary care practitioners. "The disease is here and can be highly lethal, though also highly preventable if diagnosed early," she says.

http://www.scientificamerican.com/article.cfm?id=silent-killer-chagas-disease
Bugs That Transmit "Silent Killer" Are Biting More in the U.S.

EM HIPÓTESE ALGUMA, SERÁ CONSIDERADA A RESPOSTA NESTE CADERNO.

Depois de ler o texto, responda as questões a seguir em português.

QUESTÃO 01 – Não sendo provável uma epidemia da doença de Chagas nos Estados Unidos, o que justifica a preocupação dos pesquisadores em relação a essa doença?

- Patricia Dorn: _____
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- Stephen Klotz:_____
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QUESTÃO 02 – Qual a explicação apresentada no texto para que a doença de Chagas seja também chamada de “assassino silencioso”?

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QUESTÃO 03 - Quais os procedimentos metodológicos utilizados por Patricia Dorn e seus colegas para investigar a ameaça da doença de Chagas nos Estados Unidos?

- Amostra:_____

_____

- Método: _____

_____

- Procedimentos:
  - _____

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  - _____

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QUESTÃO 04 - Quais os dois principais resultados encontrados pela pesquisa mencionada e como eles podem ser comparados/diferenciados em relação a outras localidades?

- Resultados:
  - _____

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  - _____

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- Outras localidades:
  - Guatemala_____

_____

  - Lousiana_____

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QUESTÃO 05 - Como a doença é transmitida pelo barbeiro e o que diferencia essa transmissão em relação às transmissões por demais mosquitos?

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