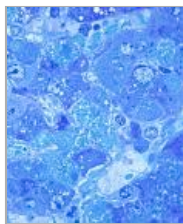


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## Lassa fever prophylaxis proposed

Review offers evidence-based advice for use of antiviral drugs after exposure to the bioterrorism agent



Photomicrograph showing hepatitis caused by the Lassa virus.

Image credit: CDC/Dr. W. Winn

Antiviral drugs against the Lassa fever virus should be prescribed as a preventative measure when people have certain high-risk exposures, such as getting pierced by a contaminated needle, according to research published this month in *Clinical Infectious Diseases*.

Specific guidelines for use of the drug ribavirin are proposed by Daniel Bausch and colleagues after a systematic review of evidence on the disease, the drug and the illness.

"These guidelines may also serve for PEP [post-exposure prophylaxis] for the other arenaviruses causing hemorrhagic fever (Junin, Machupo, Guanarito, Sabiá, and Flexal viruses) as well as for Crimean-Congo hemorrhagic fever," write the authors.

People usually contract Lassa fever by coming into contact with the waste products of infected rodents. But the virus is considered a category-A bioterrorism agent by the US Centers for Disease Control and Prevention (CDC), a classification that indicates a priority pathogen that could pose a high risk to public health or national security.

Ribavirin is the recommended treatment for haemorrhagic fever caused by the Lassa fever virus as it can cut the case-fatality rate from 55% to 5%. But the World Health Organization says there is no evidence to suggest that the drug should also be used for post-exposure prophylaxis. And although **patient management guidelines** published by the CDC in the late 1980s advise that the drug is given to contacts of an infected person, the agency currently makes no mention of prophylactic use on its website.

Most doctors who see people at high risk of developing Lassa fever after becoming exposed to the virus would consider prescribing ribavirin for prophylaxis, according to the authors. But there is little consistency or empirical underpinning to the advice.

"[It is] unlikely that controlled, prospective efficacy trials for ribavirin PEP for Lassa fever will ever be possible," Bausch and colleagues point out. This is because the disease is endemic only in West Africa, with few instances of person-to-person transmission, high-risk exposures or imported cases. "Recommendations... can therefore be made only on the basis of a thorough understanding and logical extrapolation of existing data."

Based on the literature review, they caution against liberal use of the drug even though it is safe and relatively cheap. This is because the risk of person-to-person spread is low, the benefit of taking the drug is unclear, and mild side-effects such as anaemia and nausea are frequent.

But they say it should be used for prevention when doctors are certain that a patient was exposed to the virus through contact with contaminated equipment and bodily fluids, for example, or by giving emergency aid and being in a contaminated space for hours without wearing protective equipment.

"We do recommend ribavirin as prophylaxis, but just in very specific circumstances of clear exposures," Bausch tells EHTF News in an email. Currently at Tulane University in Louisiana, USA, Bausch was director of CDC's Lassa Fever Research Field Station in Guinea from 1996 to 2003.

The evidence reviewed by the authors suggests that person-to-person spread of the virus is rare without direct contact with infected blood or other bodily fluids. The period between exposure and visible symptoms of illness can last up to three weeks, making early diagnosis difficult. Mortality rates vary depending on the virus strain, and can be as low as 5%; but there is usually no indication of when a particular case of illness might turn severe.

Having found no human studies estimating the reduction in risk associated with using ribavirin, Bausch and colleagues looked at data from animal studies and pharmacological testing using cell culture. They found that giving a single dose of the drug intravenously could easily inhibit the virus, but the data on the benefit of oral formulations of the drug were less certain.

Nevertheless, they propose an oral regimen because the intravenous drug comes with disadvantages — including a much higher cost. "Oral ribavirin should be started immediately after the high-risk exposure, but not before counselling of the patient by the physician," they say. Although the data suggest that the drug is safe for most people, those who experience minor adverse reactions could be discouraged from sticking to the recommended dose regimen.

**Reference and links**

1. Bausch DG, Hadi CM, Khan SH, Lertora JJ. Review of the literature and proposed guidelines for the use of oral ribavirin as postexposure prophylaxis for Lassa fever. *Clin Infect Dis* 2010, **51**:1435–41. doi: [10.1086/657315](https://doi.org/10.1086/657315)

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