Remdesivir (GS-5734) protects African green monkeys from Nipah virus challenge

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Abstract

Nipah virus is an emerging pathogen in the Paramyxoviridae family. Upon transmission of Nipah virus from its natural reservoir, Pteropus spp. fruit bats, to humans, it causes respiratory and neurological disease with a case-fatality rate about 70%.

Human-to-human transmission has been observed during Nipah virus outbreaks in Bangladesh and India. A therapeutic treatment for Nipah virus disease is urgently needed.

Researchers tested the efficacy of remdesivir (GS-5734), a broad-acting antiviral nucleotide prodrug, against Nipah virus Bangladesh genotype in African green monkeys. Animals were inoculated with a lethal dose of Nipah virus, and a once-daily intravenous remdesivir treatment was initiated 24 hours later and continued for 12 days. Mild respiratory signs were observed in two of four treated animals, whereas all control animals developed severe respiratory disease signs.

In contrast to control animals, which all succumbed to the infection, all remdesivir-treated animals survived the lethal challenge, indicating that remdesivir represents a promising antiviral treatment for Nipah virus infection.

Comment

The Nipah virus is a RNA virus of the genus Henipavirus and normally circulates among fruit bats. Nipah virus causes a respiratory tract infection and severe encephalitis in humans, but can also infect pigs. Human to human transmission is well documented and in May 2018, an outbreak of Nipah virus infection resulted in at least 17 deaths in the state of Kerala, India (1,2).


Nicola Petrosillo and Eskild Petersen
Co-chairs
ESCMID Emerging Infections Task Force