SCREENING OF BAT CARERS FOR ANTIBODIES TO EQUINE MORBILLIVIRUS

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Abstract

In response to a recent finding of antibodies reactive with equine morbillivirus in four species of flying foxes, people who had close association with flying foxes were tested for antibodies to the virus. One hundred and twenty-eight bat carers were tested, none of whom had detectable antibodies. As people who had regular contact with flying foxes were targeted in this study, the majority of the subjects had considerable histories of contact with flying foxes, including scratches and bites. These findings suggest that neither prolonged close contact nor casual contact with flying foxes engenders a risk of equine morbillivirus infection in humans. ***Comm Dis Intell* 1996;20:477-478.**

Introduction

Two outbreaks of equine morbillivirus infection involving three human cases have occurred in Queensland[1,2,3,4]. One was in Mackay and the other was in Brisbane. Both outbreaks involved horses and the human cases were horse handlers. In a search for an animal reservoir for equine morbillivirus (EMV), Young *et al* detected in 9% of flying foxes antibodies reactive with equine morbillivirus in ELISA and in neutralisation assays[5,6]. Antibodies were detected in serum samples taken from all four species of flying fox that occur in Queensland. Antibodies have not been detected in any of the 46 other animal species tested so far[6].

This finding raised concerns among some people who care for flying foxes. First, some carers were concerned that they were at risk of equine morbillivirus infection because of close contact with flying foxes. Secondly, many carers were concerned that some people may use the potential risk of infection to humans as a reason to shoot flying foxes. Many bat carer organisations rely on volunteers to care for orphaned flying foxes and on donations received for giving talks about flying foxes which involved showing live animals. Both these activities appeared to be under threat because of fears of equine morbillivirus infection. For these reasons, several bat carers requested testing for antibodies to equine morbillivirus infection.

Methods

Bat careers were contacted through bat carer organisations in Queensland and New South Wales. Serological testing was offered to bat carers who had prolonged, significant contact with either adult or juvenile flying foxes. Others who had lesser amounts of contact were tested because of concerns about occupational health and safety or because of their association with a bat carer organisation. All those who were tested were asked to complete a self-administered questionnaire in which their history of contact with flying foxes was documented. The sera were tested for antibodies to equine morbillivirus using an ELISA assay and any equivocal results were sent to the Australian Animal Health Laboratory for serum neutralisation assays.

Results

None of the 128 bat carers who were tested had detectable antibodies to equine morbillivirus. All carers were from Queensland except for six who were from New South Wales. The median duration of contact was 48 months, ranging from one month to 36 years. Of the carers, 74% reported daily contact with flying foxes. When the duration and frequency of contact were considered together, the median number of months in which contact with flying foxes was experienced was 25.5, ranging from less than one month to 36 years. One of the subjects had received several deep puncture wounds to a finger and web space of one hand from a bite while handling a bat now known to be EMV antibody-positive at the time of the bites. This person's serology was negative at both three days and eight weeks post-bite, and she remains well.

Of the carers, 74% reported having been bitten, 88% reported having been scratched, and 60% reported exposure to flying fox blood. The majority (72%) reported caring for sick and injured flying foxes. Carers had been exposed to all four species of flying fox, with 51% reporting exposure to grey flying foxes, 59% to little red flying foxes, 74% to black flying foxes and 41% to spectacled flying foxes.

Discussion

We tested 128 bat carers, most of whom had prolonged contact with flying foxes which included having been bitten, scratched and having exposure to blood. None of these carers tested positive for antibodies to EMV infec-

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tion. There are a number of possible reasons for this. First, the flying foxes may have been infected with a paramyxovirus related to equine morbillivirus but which does not infect humans. The fact that antibodies from flying foxes neutralise equine morbillivirus in vitro makes this explanation unlikely. Secondly, the infection in the flying foxes leading to the production of antibodies may be short lived, making it unlikely that a bat carer will have exposure to an infected flying fox. A further possible explanation is that equine morbillivirus infection is not readily transmitted from flying foxes to humans. As we did not test all bat carers our findings cannot totally exclude the possibility of transmission to humans. However if this has occurred it must be extremely rare.

Regardless of the explanation, our data suggest that neither prolonged close contact nor casual contact with flying foxes engenders a risk of equine morbillivirus infection in humans.

Acknowledgements

The authors wish to thank Queensland Health for their support of the testing, in particular the Laboratory of Microbiology and Pathology that performed the serological testing. The authors also thank the Australian Animal Health Laboratory in Geelong, Victoria for their assistance with confirmatory testing and Queensland Medical Laboratory, Sullivan and Nicolaides and Macquarie Pathology for their assistance in collecting and transporting blood. Finally, the authors would like to thank the various bat carer organisations that co-operated so well with the study.

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