Fatal encephalitis and meningitis at the Gold Coast Hospital, 1980 to 1996

John Gerrard, Gold Coast Hospital, Southport, Queensland 4215

Abstract

The recent association of a fatal human case of encephalitis with a newly identified lyssavirus apparently acquired from a native Australian bat has highlighted the possibility that previous human infections have passed unrecognised. Infected bats have been identified on the Queensland Gold Coast where extensive close contact between bats and humans has occurred for many years. In an attempt to identify previously unrecognised cases of fatal lyssavirus encephalitis, the medical records of the Gold Coast Hospital over a 16 year period from 1980 to 1996 were reviewed. Of 20 cases coded as 'encephalitis' or 'meningitis' where death occurred, none was consistent with an encephalitis due to an unidentified virus. *Comm Dis Intell* 1997;21:32-33.

Introduction

In July 1996, a possible lyssavirus infection in a black flying fox found in northern New South Wales was reported in *Communicable Diseases Intelligence*[1]. Infection was subsequently identified in bats on the Queensland Gold Coast, then elsewhere in Queensland and Victoria. Within four months of the initial discovery, a fatal human case of encephalitis due to the same virus was reported in a woman from Rockhampton[2]. The rapidity with which the human infection was detected suggests that either this is a new epizootic or that previous human infection has gone unrecognised. In an attempt to identify previously unrecognised cases of human lyssavirus encephalitis, a review of fatal encephalitis and meningitis cases at the Gold Coast Hospital between 1980 and 1996 was performed.

Methods

Possible cases were identified using the hospital discharge databases of the Queensland Government Health Information Centre spanning the years 1980 to 1996 but excluding 1982. No data were collected during 1982. Between 1980 and 1990, only the principal condition was recorded, but thereafter other conditions were coded. The databases were searched for conditions pertaining to 'encephalitis' or 'meningitis' using ICD9 codes 046 to 049, 320 to 323 and 071, including all subcategories. The case records of any patient who died in hospital were reviewed.

Results

During the 16 year period, 21 patients with recorded codes pertaining to 'encephalitis' or 'meningitis' died in the Gold Coast Hospital. The records of a six year old male with 'bacterial meningitis' could not be located. Of the remaining 20 cases, specific pathogens were isolated in 12 (Table).

Of the remaining eight cases, two had intracranial malignancies, one had transverse myelitis and died of a probable pulmonary embolism, one presented hemiplegic in the terminal phase of AIDS and was not investigated, one had chronic end stage renal failure with encephalopathy, one had severe Parkinson's disease with neurological deterioration, one was a nursing home patient with partially treated bacterial meningitis, and one was an intravenous drug user with a right hemispheric infarction/abscess. None had a clinical picture consistent with an acute unexplained fatal viral encephalitis.

Table.
Fatal cases of encephalitis and meningitis where a pathogen was isolated, Gold Coast Hospital, 1980 to 1996

Pathogen	Fatal cases
Cryptococcus neoformans	3
Neisseria meningitidis	2
Streptococcus pneumoniae	2
Streptococcus agalactiae	1
Streptococcus salvarius	1
Haemophilus influenzae	1
Herpes simplex	1
Influenza type B	1
Total	12

Discussion

The Gold Coast Hospital services a population of 300,000 - 400,000 from Queensland and northern New South Wales. In the region there are three animal sanctuaries and four amateur carer groups involved in the rearing of sick and orphaned flying foxes. Bites and scratches from these animals occur frequently. During the 16 year study period, hundreds of local residents would have been bitten or scratched by these animals and yet no case resembling fatal lyssavirus encephalitis can be identified from computer coded hospital records. Given the rapidity with which the first fatal human lyssavirus infection was identified in Queensland, such infection appears to have been surprisingly rare.

Possible explanations for the failure to identify cases in this study include (1) the virus is not readily transmitted from bats to humans, (2) infection in bats is uncommon, (3) infection in humans is not usually fatal, (4) the virus has been introduced recently into the bat population, or (5) hospital record coding has been inadequate. Clearly, more data from more hospitals need to be collected.