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Is somnambulism a distinct disorder of humans and not seen in non-human primates?

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Summary Though somnambulism (sleepwalking) is a well-recognized sleep disorder in humans, a biomedical literature search in Medline and Primate Literature bibliographic databases showed no publications on sleepwalking in non-human primates. From this finding, two inferences can be made. First is that somnambulism may be present in non-human primates; but due to limitations in expertise and methodological resources as well as narrow focus of research interest, until now researchers have not detected it in wild and/or captive conditions. Second, somnambulism does not exist in non-human primates including apes (chimpanzee, gorilla, orang-utan and gibbon); and thus, it is a unique behavioral disorder present only in humans. It is premature to conclude which of these two inferences is correct. In Jane Goodall's view, sleepwalking behavior is absent in chimpanzees. If further field observations can confirm Goodall's assertion that somnambulism is indeed absent in chimpanzees, it will be of evolutionary and medical interest to know why this parasomnic behavior became established in humans during the past 5.5 million years or so.

INTRODUCTION

Somnambulism or sleepwalking is a well-recognized sleep disorder in humans with a rich anecdotal history. Reviews on somnambulism have appeared at regular intervals (1–4). Though somnambulism is more prevalent in children, it becomes worrisome in adults, with dire consequences to life and limb of the patients and those who live with the afflicted patient. Even sleep-related atypical sexual behavior in humans like sleep sex (5,6) are considered as a variant of sleepwalking. Since, to the best of my knowledge, no animal model exists to study somnambulism and elucidate its biochemical mechanism of origin, I was interested in finding out whether sleepwalking exists in non-human primates.

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METHOD

Available biomedical literature was searched using two key words 'non-human primates' and 'somnambulism or sleepwalking' in two electronic databases, namely, the National Center for Biotechnology Information's Pub Med literature database (covering Medline's 11 million biomedical journal citations from 1965 onwards) and the Primate Lit bibliographic database maintained by the Wisconsin Regional Primate Research Center, Washington Regional Primate Research Center and the University of Wisconsin-Madison Libraries (covering over 170,000 biomedical journal citations from 1940 onwards).

RESULT AND DISCUSSION

A literature scan on the two available and relevant electronic databases showed that scientific literature on

somnambulism in non-human primates is non-existing. From this result, following two inferences can be made.

(1) Somnambulism may be present in non-human primates; but due to limitations in expertise and methodological resources as well as narrow focus of research interest, until now researchers have failed to observe this parasomnic behavior in wild and/or captive conditions.
(2) Somnambulism does not exist in non-human primates including apes (chimpanzee, gorilla, orang-utan and gibbon). Thus, it is a unique behavioral disorder present only in humans.

It is premature to conclude which of the above two inferences is correct. While comparing the sleep behavior of great apes, Yerkes and Yerkes (7) had observed as follows: 'In sleep, orang-utan, chimpanzee and gorilla, like man, lie on back or side. Often the head rests on one or both arms as on a pillow. Snoring during sleep has been reported for the orang-utan and gorilla. In all probability it occurs also in the chimpanzee. The suggested order of increasing resemblance to man in skill and elaborateness of nest construction, sleeping posture and activity during sleep is: Hylobatidae, orang-utan, gorilla, chimpanzee.'

This is not unexpected, since among the great apes, chimpanzee shows the closest biological affinity to humans. Duration of one sleep cycle in chimpanzee and human is 90.0 and 95.8 min, respectively (8). In addition, cumulative total sleep time in a 24 h duration for chimpanzee and human amounts to 9.7 and 8.0 h, respectively (8). On the question of evidence for somnambulism in chimpanzee, I checked with Jane Goodall, who has published on the sleep behavior of this great ape (9, and the cited references therein). In an answer to a question following a special lecture she delivered recently at the COE International Symposium on 'Evolution of the Apes and the Origin of the Human Beings' (Inuyama City, Japan, Nov. 14–17, 2002), Goodall responded that she is unaware of the existence of sleepwalking behavior in chimpanzees. The divergence between the human lineage and chimpanzees is now determined to have occurred 5.4 ± 1.1 million years ago (10). If further field observations can confirm Goodall's assertion that somnambulism is indeed absent in chimpanzees, it will be of evolutionary and medical interest to know why this parasomnic behavior became established in humans during the past 5.5 million years or so.

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