Scientists find genetic basis for sleepwalking

February 10 2011, by Lin Edwards

(PhysOrg.com) -- Scientists studying a large family with four generations of sleepwalkers have traced the condition to one section of a single chromosome: chromosome 20, and have found that carrying just one copy of this defective section of DNA will make its carrier a sleepwalker.

Around one in 10 children are sleepwalkers and one in 50 adults. The condition, known as somnambulism, is usually benign but can be frightening and even dangerous, with some adult sleepwalkers even being able to find their keys and drive off in their cars while asleep.

Somnambulism is poorly understood. It generally occurs shortly after the person falls asleep, and takes place during a deep, non-dreaming, non-rapid eye movement phase characterized by slow brain waves. A sleepwalking episode usually lasts only a few minutes and it usually ends with the sleepwalker returning to bed, often without waking, and with no recollection the next day. Stress is a known trigger.

To learn more about the condition, scientists from the Washington University School of Medicine department of neurology, led by Dr Christina A. Gurnett, enlisted the aid of a family in which nine of the 22 members of the four generations were sleepwalkers, including Hanna, 12, who had been sleepwalking regularly, wandering outside the house during the night. One of Hannah's uncles was also a sleepwalker, and regularly woke to discover he had donned eight pairs of socks while asleep. Some of the family had sustained injuries during sleepwalking.

The researchers carried out a genome-wide search to see if they could find a genetic basis for the condition. They found a section of the DNA on chromosome 20 was related to sleepwalking: those who had the faulty DNA section sleepwalked, and those who did not were not sleepwalkers. A person with the condition had a 50 percent chance of passing it on to their offspring.

Dr Gurnett and the team have not yet identified the specific genes or gene involved, but think of the 28 or so likely candidates the most promising is the adenosine deaminase gene, which has been linked to the slow wave stage of sleep in which sleepwalking occurs. Since most people grow out of sleepwalking, Dr Gurnett said several genes are likely to be involved, and added that what the team had found was the "first genetic locus for sleepwalking."

The paper was published in the journal *Neurology*. Future research will focus on identifying the exact gene or genes responsible for sleepwalking, since this may lead to ways of treating the condition. At present most cases are not treated because the drugs that are available have unwanted side effects.

More information: Novel genetic findings in an extended family pedigree with sleepwalking, by A.K. Licis, MD, et al., *Neurology* January 4, 2011 vol. 76 no. 1. doi:10.1212/WNL.0b013e318203e964