Medical Xpress

New discovery into causes of tremor

June 1 2010

(PhysOrg.com) -- Scientists at Newcastle University have made a discovery which could help around 1 million people in the UK who suffer from shakes and tremors.

Mild tremor is a feature of daily life in healthy individuals - we have all experienced it, especially when nervous, tired or hungry. But more severe tremors are a symptom of nervous diseases, such as Parkinson's, Multiple Sclerosis and Essential Tremor. Essential tremor is common in old age, but younger people can also be affected, and in severe cases it can leave patients unable to walk unaided.

Now scientists have discovered a mechanism in the spine which works to counteract the brain waves which produce tremor, meaning they are a step closer to treating these shakes and transforming lives.

Research leader Prof. Stuart Baker, professor of movement neuroscience, said: "We don't fully understand the brain systems causing these tremors but they can really have a massive impact on someone's quality of life. They lose their independence and can't do something as simple as make a cup of tea.

"Our approach was that instead of looking at why people suffer from tremors, we started to look at why most people don't suffer from them. The brain waves from the parts of the brain controlling movement work at 10 cycles per second, so really, everyone should have a tremor at that frequency. In fact we do, but for most of us - most of the time - tremor is so small as to be hardly noticeable. We reasoned that there is

something in the body which counters the tremor, cancelling it out, and we wanted to find out what it was."

The research, which is published in the American Journal Proceedings of the National Academy of Sciences and is funded by the Wellcome Trust, involved teaching macaque monkeys to move their index finger slowly backwards and forwards. This exacerbated the natural minor tremors that both primates and humans experience. Sensors were used to record the activity of nerve cells from the brain and the spinal cord as the animals moved. The brain and spinal cord both showed rhythmic activity at the same frequency as the tremor. But crucially the spinal cord was active alternately with the brain, counteracting the oscillations and reducing the size of the tremor.

Prof. Baker continued: “There are many different sorts of disease which produce tremor. In some, maybe the controller in the spine malfunctions, and that is what actually causes the tremor. In other diseases, we already know that the problem is in the brain: particular brain regions produce abnormally high oscillations. But even then, the spinal system we have discovered will reduce tremors, making the symptoms much less severe than they would otherwise be.

“Understanding more about how the spinal controller works could open the way to adjusting it to work better, reducing the levels of tremors patients suffer and improving their lives.”

Provided by Newcastle University

Citation: New discovery into causes of tremor (2010, June 1) retrieved 2 May 2024 from https://medicalxpress.com/news/2010-06-discovery-tremor.html