Natural Human hormone as the next antidepressant?

December 6 2007

Facial expressions are salient of basic emotions and were used to assess the effects of Epo.

A search for novel treatment strategies in coping with depression has revealed that erythropoietin, or Epo, a hormone naturally produced by the kidneys to stimulate the formation of red blood cells, affects cognitive and associated neural responses in humans, and could potentially be used in the treatment of depression.

The study, published in *Biological Psychiatry* by Oxford University researchers based at the Department of Experimental Psychology and the Warneford Hospital, Oxford, found that Epo, known as a treatment for anaemia, modulates human brain activity associated with the processing of emotion.

Kamilla Miskowiak, a DPhil Student from the Department of Experimental Psychology, said: ‘Although depression is often related to problems in the chemistry of the brain, recent evidence also suggests that there may be structural problems as well with nerve cells not being regenerated as fast as normal, or suffering from toxic effects of stress and stress hormones.’

The researchers evaluated the effects of Epo on the neural and cognitive processing of emotional information in 23 healthy volunteers using pictures of happy and fearful faces, and functional magnetic resonance imaging (fMRI). Facial expressions of emotion provide important biological signals in human interaction. Expressions of fear may signal threat and are the most salient of our basic emotions. The researchers focused on the effects of Epo on this ‘threat relevant information.’

Results showed that Epo regulated the emotional responses of those volunteers that received it, similar to the effects of current antidepressants. A single dose of Epo reduced the cognitive and neural processing of threat relevant information in a remarkably similar way to established anti-depressant drugs, even though the test was performed seven days after administration.

The World Health Organisation has identified depression as an urgent health priority with the need for better and more effective treatment options, and Miskowiak said: ‘This finding provides support to the idea that Epo affects neurocognitive function in ways compatible with an antidepressant action and may be a candidate agent for future treatment strategies for depression.’

Source: Oxford University