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Performance-enhancing drug may improve cognition in patients with bipolar disorder or depression

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A study has found that EPO (erythropoietin) - best known as a performance-enhancing drug in sport - may improve cognitive functioning in patients suffering from bipolar disorder or depression. This raises hope for the first long-term treatment for this problem, which affects hundreds of millions of patients throughout the world. The work is presented today at the ECNP conference in Vienna.

The hormone EPO, mostly produced by the kidney, is essential for the production of red blood cells. EPO gives the blood a greater capacity to carry oxygen, and it is this characteristic which makes it attractive as a performance-enhancing drug (the cyclist Lance Armstrong admitted to using EPO to improve physical performance). Medically, recombinant EPO is used for the treatment of anaemia.

Most people think of disorders such as bipolar disorder and depression as conditions which affect mood, but in reality they also affect cognitive function - how quickly and how well a brain functions. This slow-down in thinking can have serious effects on sufferers, making it more difficult to retain a job, pass an exam, or maintain a relationship. Now a group of Danish Scientists have discovered that EPO can help restore cognitive function in patients suffering from these mental disorders.

In two randomized controlled trials, the researchers assessed cognitive function in 79 patients suffering from depression or bipolar disorder. They assigned 40 of the patients to be given EPO for 9 weeks, with the remaining 39 being given a placebo. They found that EPO had beneficial effects on patients' completion of a range of cognitive tests, including tests on verbal memory, attention span, and planning ability. Tests showed that this improvement was maintained for at least 6 weeks after treatment finished (the longest follow-up time in the trials).

Lead researcher, Dr Kamilla Miskowiak said:

"EPO treated patients showed a five times greater cognitive improvement from their individual baseline levels compared with placebo treated patients. EPO-treated patients showed 11% improvement while placebo treated patients improved only by 2%. This effect of EPO on cognition was maintained six weeks after patients had completed their treatment".

In an interesting twist, it was found that patients who performed poorly in neuropsychological tests showed remarkably greater cognitive benefits when given EPO. Dr Miskowiak, commented:

"This is interesting, as it means that we may be able to target patients for EPO treatment -and perhaps other future cognition treatments - based on how they do on neuropsychological tests".

She continued

"We need bigger studies to confirm that the effects we have seen can be replicated, to confirm dosage, frequency of use and so on. EPO is already used medically, so we know quite a lot about safety. Although EPO is generally safe if patients' red blood cell levels are controlled regularly, there are certain groups for whom the risk of blot clots is too high - for example people who smoke or who have previously had blood clots. So although these results hold out great promise, EPO treatment is not ready to be rolled out as a treatment just yet and may not be for everyone".

The WHO estimates that around 350 million people suffer from depression, with a further 60 million suffering from bipolar disorder, but the drugs normally used to treat depression and bipolar disorders don't have any major effect on cognition. Up to 70% of patients in remission from bipolar disorder, and up to 40% in remission from depression continue to have cognitive problems. Currently there is no available effective treatment to target cognitive problems in these patients.

Commenting, Professor Eduard Vieta (Chair of the Department of Psychiatry and Psychology at the University of Barcelona Hospital Clinic and treasurer of the ECNP) said:

"The results of this study, albeit preliminary, give hope to people suffering from mood disorders and associated neurocognitive symptoms. Those symptoms are now recognized as a core part of affective disorders and are not

appropriately tackled by the currently available pharmacological armamentarium, despite their close association with relevant clinical outcomes such as the ability to return to work".

Source:
European College of Neuropsychopharmacology (ECNP)