

Vitamin D Deficiency Linked to Onset of Psychosis

By: Deborah Brauser

Vitamin D deficiency is linked to first episodes of psychosis (FEP), new research suggests.

A study of almost 140 participants in the United Kingdom showed that those who were presenting to a psychiatric in-patient facility with an FEP had significantly lower levels of vitamin D than did their age-matched, healthy peers.

"What surprised us was the degree of difference between the patients and their matched controls, with patients being nearly 3 times as likely to have full-blown vitamin D deficiency," co-first author John Lally, MRCPsych, clinical research fellow in the IMPACT project at the Institute of Psychiatry in London, UK, and in the UK's National Psychosis Unit, told *Medscape Medical News*.

"However, we still don't know whether these low vitamin D levels are a part of the psychosis illness itself or whether they are purely a result of the lifestyle choices linked to its emergence," added Dr. Lally.

The investigators note that future studies are needed to examine these associations further.

"In the meantime, there is a need for more widespread testing of vitamin D levels in FEP and for the development of appropriate management strategies," they write.

The study is published in the November issue of *Schizophrenia Research*.

First Study of Its Kind

Previous research has shown that individuals with psychotic disorders often have vitamin D deficiency. However, this could be caused by long periods of hospitalization, use of anticonvulsant medications, or poor diet, note the investigators.

They add that until now, no study has assessed whether the association occurs at the onset of illness.

"It is known that people in long-stay psychiatric wards have high rates of vitamin D deficiency, possibly related to spending long periods indoors," said Dr. Lally.

"We therefore expected that vitamin D levels may be somewhat low even in early psychosis, as people may be less engaged in their day-to-day activities in the period before their first presentation and so may have less exposure to sunlight," he added.

In the study, the researchers enrolled 69 adult inpatients (39% men; 56% white, 29% black, 14% Asian; mean age, 31 years) who were presenting with FEP and 69 age-, sex-, and race-matched healthy control individuals.

Chemiluminescence immunoassay was used to determine vitamin D levels in all participants.

Vitamin D insufficiency was defined as 25-hydroxy vitamin D (25-OHD) levels between 25 and 50 nmol/L, and vitamin D deficiency was defined as levels lower than 25 nmol/L.

Results showed significantly lower mean levels of vitamin D in the FEP patients compared with the healthy control group (36.5 nmol/L vs 53.8 nmol/L, respectively; $P < .001$).

The FEP group was also significantly more likely than their healthy peers to have a vitamin D deficiency (36.2% vs 15.9%, respectively; odds ratio [OR], 2.99; $P = .008$).

No significant links were found between length of hospitalization, smoking status, or body mass index in the FEP group and vitamin D levels. There was also no evidence of an effect from antipsychotic or anticonvulsant medications.

Supplementation Study Urgently Needed

In both comparison groups, the white participants had the highest levels of vitamin D, and the black participants had the lowest levels. In those presenting with FEP, the mean level in nmol/L for the white subgroup was 46.3 vs 22.6 for the black subgroup ($P = .001$) and vs 25.1 for the Asian subgroup ($P = .02$).

In the healthy control group, the mean vitamin D level in nmol/L for the white subgroup was 66.1 vs 32.6 for the black subgroup ($P < .001$) and vs 39.2 for the Asian subgroup ($P = .04$).

Although "there were trends" toward higher levels of the vitamin when the blood sampling was performed in summer/autumn months than in winter/spring months in both groups, this was not found to be statistically significant.

"This study shows for the first time that vitamin D levels are low at the onset of a first psychotic episode. In our sample, one third of people were vitamin D deficient at the time," write the researchers.

They note 3 possible causes for the association:

1. During the often long prodromal phase, many patients with schizophrenia withdraw from normal activities, and this might result in a reduction in sunlight exposure.
2. Having low levels of vitamin D over a long period may be a risk factor for developing psychosis.
3. Because vitamin D is a negative acute-phase reactant, levels can decrease during an inflammatory response.

"These risks highlight the need for practical guidelines to help this group access appropriate and equitable care, preventing vitamin D deficiency from occurring, and how to manage it when it is detected or suspected," write the investigators.

"We don't have enough evidence as yet to recommend that vitamin D supplementation be routinely instituted, but it is clear that research is urgently needed to assess the effect of vitamin D on health outcomes in early psychosis," added Dr. Lally.

Overlooked, Under-researched

"I think this is a very good first start to try to characterize the relationship of vitamin D in human psychiatric populations," Barbara Gracious, MD, associate professor of clinical psychiatry and Jeffrey Research Fellow in the Department of Psychiatry at the Ohio State University in Columbus, told *Medscape Medical News*.

"This actually confirms something I showed in a group of adolescents presenting with acute disorders," she added.

Dr. Gracious, who was not involved with this research, published her study last year in *BMC Psychiatry*.

"What's intriguing about this is that vitamin D is very important to the brain, but it's been overlooked and under-researched. The implications for this population could be some sort of improvement in mental health, if they were vitamin D depleted, or potentially augmenting a recovering process that would decrease vulnerability to relapse," she said.

"Those would be the goals of a prospective study."

She noted that in the current research, she would have liked for the investigators to have included lifestyle factors, such as dietary intake or exposure to sunlight, and compared them with the healthy control group.

Still, she said that this was an interesting study. And her recommendation for clinicians is to pay attention to the levels of vitamin D in their own patients.

"We know that vitamin D deficiency is associated with bone health. And in the schizophrenic population, we know that studies have documented earlier onset of osteoporosis. So it might be important to normalize this population's vitamin D intake to prevent the risk for fractures, as well as other potential issues," said Dr. Gracious.

"Also, what really needs to happen is more prospective studies," she concluded.

The study was funded by grants from the National Institute for Health Research's IMPACT Programme and the Medical Research Council. The study authors have disclosed several possible conflicts of interest, which are fully listed in the original article. Dr. Gracious has disclosed no relevant financial relationships.

Schizophr Res. 2013;150:533-537.

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