Reviewer’s report

Title: Vitamin D deficiency and psychotic features in mentally ill adolescents

Version: 1 Date: 20 March 2012

Reviewer: Vivian Kafantaris

Reviewer’s report:

This study sought to examine if there was a relationship between severity of illness, defined as the presence of psychotic features and serum 25-OH vitamin D levels. They hypothesized that there would be greater vitamin D deficiency in their sample than in the general population and that lower vitamin D levels would be associated with psychotic features. The authors conducted a retrospective chart review of adolescents hospitalized or attending a partial hospital program for psychiatric illness between October 2008 and February 2010. Vitamin D levels had been drawn as part of a quality improvement project. The sample of 104 patients is described as all who had serum 25-OH vitamin D levels but the number of patients with missing values was not described.

The results are intriguing but need to be understood in the context of the limitations of the small, and possibly unrepresentative, sample. The dates oversampled the winter months when vitamin D levels have been documented to be lower and the location where data were collected (Rochester, NY) also has latitude associated with lower vitamin D levels. These factors may account for the finding of lower Vitamin D levels in this sample than in the general population. There is also a potential confounding of psychosis with lack of access or reticence to seek care early.

The discussion section is thought-provoking and interesting but could benefit from mostly stylistic revisions that clarify and further justify the conclusions drawn from the existing data. Revisions are also needed to improve the clarity and coherence of the paper, particularly when describing the relationship of this paper to the existing published data. For example, about mid-way in the discussion the authors state “Small clinical studies to date suggest potential for a causal link between low vitamin D and mood and psychotic disorders but epidemiologic studies have been inconsistent and are limited methodologically…” As their study is also a relatively small clinical study that suggests a potential for a causal link, it would be worthwhile to expand upon how this study fits in with and advances the existing literature.

Discretionary Revisions (which are recommendations for improvement but which the author can choose to ignore)

1. Figures 1a and 1b could benefit from having the sample sizes noted.
2. Figure 2 was difficult for this reviewer to decipher initially and would benefit from a more informative legend or by depiction using bar graphs.
Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. The title refers to “A cohort study” but this term usually refers to a group that is followed over time. This is a cross-sectional study so the term “cohort” is confusing.

2. The authors referred to previously published work by other groups as confirming and replicating their own findings when the temporal relationship is reversed.

3. Revisions to the discussion section are recommended to clarify and further justify the conclusions drawn based on existing data (taking into account the potential confounding factors) and to improve the clarity and coherence of the paper, particularly when describing the relationship of this paper to the existing published data.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

'I declare that I have no competing interests'