

Retraction

Nutrition regrets to announce the retraction of an article recently published in this journal, by Ranjit K. Chandra MD, on “Effect of vitamin and trace-element supplementation on cognitive function in elderly subjects,” *Nutrition* 17:709–12, 2001 [1]. We are forced to act in this way because a number of serious questions have been raised about his single author paper, in critical letters from Shenkin et al. [2] and from Roberts & Sternberg [3], and because in his responses to these letters [4,5], Chandra has not dealt adequately with the issues that were raised. The references for some of the assertions in his response [4] to Shenkin et al. do not support those assertions. Furthermore, in Chandra’s response [5] to Roberts & Sternberg he failed to address most of the issues they raised. The major concerns raised about Chandra’s article, all of which he either ignored or dealt with inadequately in his responses to his critics, are as follows:

1. Although the subjects were claimed to be normal, the average MMSE score reported placed them below normal, in the demented category [2].
2. Even though the assignment of subjects to the placebo and supplement groups was said to be at random, there were statistically significant differences between the two groups on seven measures at the start of the experiment, which in most cases were extremely significant [3].
3. Although citations were given for the other cognitive tests, no citation was given for the test of “long-term memory recall.” The description of this test in his paper [1] indicates that it was a test of autobiographical memory. Scoring of such a test requires verified biographical data, and would thus be extremely difficult and costly. It is unlikely that this test exists [3].
4. Scores that Chandra reported for the “Wechsler Memory Test” are inconsistent with the scoring reported in the reference that he gives for that test [3].
5. Chandra defined nutritional status as “deficient” if the subject was in the lowest 5% of the distribution of any one or more of 14 nutrients. Given this definition, one would expect the distributions of cognitive test scores for the deficient and non-deficient subjects to overlap considerably. This is especially true given Chandra’s statements [1] that “There was no significant correlation between levels of individual nutrients and cognitive function test scores,” and that “In multiple regression

analysis, no single nutrient appeared to influence cognition.” Yet for three different cognitive tests, there was almost no overlap between the distributions for the two groups [3].

Other considerations that add to our concern about the article in question are as follows:

6. A 1992 *Lancet* article [6] based on the same study had statistical mistakes and other features that call into question whether the study was actually done [7]. Chandra’s reply to a letter about these problems did not convincingly explain them [8].
7. Replications of the *Lancet* result have implausible features [3].
8. Chandra failed to declare that he holds a patent on the tested supplement formula and has a financial stake in it because the supplement was licensed to Javaan Corporation, a company founded by his daughter, that sells the supplement [9,10].

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References

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