Reviewer's report

Title: Pesticide exposure and risk of Parkinson's disease: a family-based case-control study

Version: 1  Date: 29 October 2007

Reviewer: George Mellick

Reviewer's report:

General
This is an interesting article which uses a family-based method to examine pesticide exposure as a risk factor for Parkinson's disease (PD). The influence of environmental factors, including pesticide exposure, on PD risk has been extensively examined using a variety of methodologies, with mixed outcomes. However, the literature as a whole points to pesticide exposure as an important risk factor for PD warranting closer scrutiny. The current manuscript provides important additional evidence for the importance of this risk factor to common PD. Using family-based controls which are closely matched for genetic variables and less prone to some of the other confounders influencing population-based association studies provides some advantages. Like all approaches, this approach has potential pitfalls such as the risk of over-matching, reduced power to detect modest effects and others (clearly articulated in the manuscript). This is important work that should be published.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Nil

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Nil

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Discretionary Revisions (which the author can choose to ignore)

1. It might be useful to learn more about the geographical and ethnic background of the sample investigated. Interestingly, around half of all subjects spent part of childhood or adulthood residing on a farm. This suggests that compared to some other well-examined case-control samples, this sample may be highly representative of a more rural lifestyle and extensive use of pesticides. Is this a fair comment? This information would be useful for comparisons of this data with those from potentially more urban environments and may be relevant in attempts
to replicate the findings. In terms of ethnic background, is any information available on the distribution of the background of individuals in the sampled region? Again this information might be useful in any future comparison of data from this and other similarly examined samples from other parts of the USA or internationally.

2. Some additional information about the structured telephone questionnaire would be beneficial to readers. Is this instrument freely available to other researchers? Has the instrument been examined for repeatability and reliability in PD patients and is this different to that seen in the family controls? One of the great limitations to PD risk factor studies has been inconsistency in measurement tools and classification of exposures. This manuscript very clearly defines some of the questions of interest, but it would be useful for researchers in the field to know how repeatable such measures are in this study group.

What next?: Accept after discretionary revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests