Reviewer's report

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

Version: 1 Date: 19 October 2007

Reviewer: Harvey Checkoway

Reviewer's report:

General:
Numerous previous epidemiologic studies have addressed the hypothesis that pesticides are associated with PD risk. This study was carefully conducted and has potential for adding significantly to existing literature. The authors conclusions are carefully presented, and supported by the data. There remain some questions that need to be addressed, however, as detailed below.

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

The family case-control design has some unique advantages, but also limitations, relative to conventional case-control approaches. The authors do mention these, but should be more forthright in explaining how a sample of self- or physician-referred prevalent PD cases and patient-referred relative controls may not yield generalizeable findings vis-a-vis a more standard sample of newly diagnosed PD cases from a well-defined population source and controls sampled from the same source.

Also, the definition of pesticide exposure seems to blur distinctions between occupational and residential exposures. Exposure levels can differ dramatically depending on source. An analysis of separate effects of occupational and residential exposures should be presented, recognizing that statistical power will be reduced compared with the combination of all pesticide exposure sources.

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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)

The definitions of exposure variables is not standard and should be altered. Dosage (days/year) should be labeled 'frequency'; and intensity should be labeled as either 'cumulative exposure' preferably, or 'dose'.

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Discretionary Revisions (which the author can choose to ignore)
The control group was an admixture of relatives, but perhaps spouse controls could be eliminated (or analyses done without them) since they are not really 'familial'.

**What next**: Accept after minor essential revisions

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

**Quality of written English**: Acceptable

**Statistical review**: No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests**: I declare that I have no competing interests.