Reviewer's report

Title: Years of sunlight exposure and cataract: a case-control study in a Mediterranean population

Version: 1 Date: 10 June 2007

Reviewer: William Dr. Christen

Reviewer's report:

General

The authors examined the link between sunlight exposure and cataract using a case-control design with cases and controls selected from an ophthalmology outpatient clinic at a primary health-care center in Spain. A strength of the study is the use of a standardized classification system (Lens Opacities Classification system) to identify cases and controls. A weakness of the study, as with most studies on this topic, is the necessary reliance on self-reported information on sunlight exposure which is prone to high levels of misclassification. The authors utilized a questionnaire that asked about the amount of time spent outdoors between 10 AM to 4 PM during working periods from age 25 to the date of the interview or cataract diagnosis. The study results indicate no overall association between years of outdoor exposure and risk of cataract although in exploratory subgroup analyses, the authors report a possible positive association between years of outdoor exposure at younger ages and risk of nuclear cataract later in life. Unfortunately, the Conclusion in the abstract mentions only the subgroup finding and says nothing about the main overall finding of no association.

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

1. In Results on page 10 the authors indicate that their study was not designed to analyze the association between sunlight exposure and type of cataract. Yet, the only finding presented in the Conclusion of the abstract was the finding for pure nuclear cataract. There was no mention in the Conclusion that the main finding was no association between sunlight exposure and overall risk of cataract. This should be corrected.

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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)

1. At the end of the Background, the authors state that their overall aim was to examine the relationship between sunlight exposure and intake of antioxidants and risk of cataract, but that in this paper they were going to examine the effect of years of exposure on the risks of developing cataracts, adjusting for antioxidant intake. This seems unnecessarily convoluted and should be simplified.

2. In Methods on page 6 the authors indicate that 80% of the cases were newly diagnosed at the time of the interview, but 20% were diagnosed within the recruitment period. How was prior cataract status ascertained? Patient report? Medical record?

3. In Methods on page 6 the authors also indicate that they collected information on time spent outdoors on weekends during the summer but did not use this information because they found the data to be inconsistently reported by people in different occupations. It is not clear what the authors mean by 'inconsistently reported', and it certainly seems questionable to arbitrarily dismiss these data. The authors should either indicate how the data were inconsistently reported and make a better case for not including this information, or the data should be included.

4. In Methods on page 8 the authors mention sample size calculations but they don’t discuss the hypothesis under investigation, the power of the study, and so on. This should either be clarified or dropped altogether.

5. In Methods on page 9 the authors describe the way they examined the effects of potential confounders,
i.e. whether the potential confounder changed or modified the original ORs (not further described). Then they say that final models adjusted for smoking history, alcohol consumption, and education and serum levels of ascorbic acid, retinol and lycopene. Then in Results on page 10, the authors indicate that alcohol and pack-years of cigarette smoking were not found to be confounders for years of outdoor exposure. This is confusing. Wouldn’t it be preferable in reporting final ORs to mention only those confounders kept in the final model? Or were alcohol and cigarette smoking forced in all models?

6. In describing the data in Table 2 (Results, page 10) the authors should also present percentages in addition to cataract types.

7. In Results on page 10, in discussing the independent association of education and cataract risk, the authors indicate that illiterate people had the highest risk but they don’t present an OR. If this was because illiterates were the reference group, this should be indicated.

Discretionary Revisions (which the author can choose to ignore)
None

What next?: Accept after minor essential revisions

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

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