Reviewer's report

Title: Periodontal disease and spontaneous preterm birth: A case control study.

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Reviewer: Elizabeth S Davenport

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Periodontal disease and spontaneous preterm birth: A case control study.

This study has been conducted using sound epidemiological principles.

The aims and objectives are clear, the study design is exemplary with clear definitions of case and controls, subject numbers and power calculations carried out. The periodontal examination and laboratory procedures were blind, reducing measurement bias and a standardised questionnaire used to obtain risk factors. All aspects of bias were considered and accounted for. In the end and despite power calculations, the subject numbers included in the study were small, but practical and also demonstrated 80% power of detecting a relationship between periodontal disease and pre term birth.

The definition for pre term birth is <37 weeks gestation, with most studies adhering to this, so use of <35 weeks gestation is unusual and is not the WHO definition of Pre Term birth. Amalgamation of various pre term outcomes as the authors comment is questionable and therefore strict definitions are sound and provide a means to reduce the uncertainty as to which of the many factors associated with pre term delivery actually was the final "straw™".

To eliminate bias, many aspects were taken care of, such as intra-reliability, blinding of clinical and laboratory examiners and collection of as many risk factors as possible using a structured questionnaire. A 1:2 case control ratio would have assisted in reducing confounding factors.

My only criticism of the study design would be clarification of when the clinical examinations were carried out. In the method the authors state between 2 and 28days past partum and in results within 10 days of delivery.

The recognition that the extent severity score of (3,60) was not appropriate for this population and the use of a lower threshold of (3,5) was more sensible considering the relative lower amount of periodontal disease in the study population and this had previously been adopted in a similar study in the UK.

Careful logistic regression analysis was carried out and adjustments made to the model used for the final analysis. Good sound epidemiological principles applied, which is refreshing in these studies. Consideration was taken of the time of infant delivery and the examination of the maternal periodontal structures, this is important as hormonal changes occur over a six week post partum period which may affect the periodontium.

The clarity with which this study has been conducted has to be commended. The discussion addresses all issues logically, again outlining the need for clear definitions, retaining study design and reducing bias wherever possible. However, at the same time the authors are perfectly aware that to be absolutely sure that the relationship demonstrated between markers of periodontal disease at least 8000 subjects are required. A considerable study to undertake and one that would require multi centre application and collection of all possible confounding factors associated with periodontal disease and pre term delivery. However, whatever we do must be feasible and reproducible and applied worldwide to obtain more reliable results.

This paper should be published. It has contributed to the debate at another level, that is the investigation of known and collectable periodontal enzymes.

What next?: Accept after discretionary revisions

Level of interest: An article of importance in its field
Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:

I declare that I have no competing interests.