Reviewer's report

Title: DNA repair deficiency in peripheral blood lymphocytes of endometrial cancer patients with a family history of cancer

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Reviewer: Amaya Azqueta

Reviewer's report:

I still concern about the same issues I stated in my previous revision. I agree that the obtained results can be meaningful but I still have some doubts about it. The paper of Schmezer et al is confusing in some aspects. In a preliminary study with lymphocytes of 7 healthy volunteer they showed that 20 µg/ml bleomycin saturates the assay, as it is shown in figure 1A and in the text (“Treatment with bleomycin at concentrations of #20 µg/ml induced a dose dependent increase of DNA damage (Figure 1A), but higher concentrations let to no further increase”). I do not think bleomycin does not induce more damage at higher concentration so it seems the assay is saturated at that concentration and with a tail moment of about 30. Nevertheless later on in the paper, when they analyze the real samples using 20 µg/ml bleomycin, they obtained a tail moment between 5 and 60. (Please also note that they used phytohaemagglutining stimulated cell in the real samples but it is not clear if the stimulate the cells in the preliminary study –according with the material and methods section it seems that they did not-, and this can be a reason to have different tail moments since it changes with different cell types.) Anyway in your case, when percentage of DNA in tail is used, the saturation level of the assay is clearer (that is one of the reasons why the tail moment is less used) and it is reached when treating the lymphocytes with 20 µg/ml bleomycin.

Regarding the issue about the damage inflicted by bleomycin being different between healthy subjects and cancer patients I disagree with the authors since this observation is common. For instance, in the paper of Schmezer et al they showed that lymphocytes from patients with lung cancer were more sensitive to bleomycin than lymphocytes from control subject (see Figure 2 and text –p<0.001). When this observation is done it is difficult to analyse the removal of damage since the starting point is different in both groups (there are other approaches). In this case cells are not going to repair with the same efficiency very different amounts of damage.

I recognize that this work has a lot of work behind it and the samples taken are very valuable. As I mentioned in my previous revision the comet assay is saturated at about 70 or 80% DNA in tail. I would be happy to reconsider my decision if the authors showed me that the comet assay was not saturated in the conditions used in this paper (and you can reach 100% DNA in tail). To do so I suggest you to perform a dose response (twice) with different concentrations of bleomycin (including 20 µg/ml) until the assay is saturated.
Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

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