Reviewer's report

Title: Risk of cancer among HIV-infected patients from a population-based retrospective cohort study: implications for cancer prevention

Version: 3 Date: 24 July 2014

Reviewer: Marguerite Guiguet

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This retrospective cohort study was performed using a national administrative database in Taiwan and was based more specifically on a random sample of 1 million people included in the Longitudinal Health Insurance Database 2000. HIV infection and cancer diagnosis were identified in the outpatients and inpatients claims recorded for 11 years (2000-2010). All people with HIV infection were included in the present analysis and four HIV-uninfected controls for each case matched on sex, age and year of enrolment. Logistic regression was used to estimate the risk of cancer associated with HIV infection after adjustment on confounding. SIRs for specific cancers were calculated. An increased risk for different cancers was observed and discussed.

The study is interesting but some additional information would help.

1. The timing of HIV infection and cancer diagnosis are confused and the figure 1 is clearly not the flow-chart of the present study. Did you select people with HIV infection at enrolment in LHID2000 or during the 11 years of follow-up. In the latter case, how did you classified people with a cancer revealing HIV infection.

2. How many people died or were lost of follow-up during the 11 years, and especially in the HIV infected group. The method of calculation of person-years at risk should be presented and the number of person-years should be added on Table 1.

3. Table 3 : Except for breast and cervical cancer which are clearly sex-associated, an expectation of 0 is surprising. The increased risk for some cancer with very low expected number and very large confidence interval (i.e. non-lung cancer) should be presented with more caution.

4. Discussion : it was stated that “age and sex were still risk factors for the development of cancer in HIV-infected patients”. No data are presented to support this conclusion. The analysis only showed that age and sex were independent risk factors for cancer after adjustment on HIV infection.

5. Discussion : “Breast cancer occurred in HIV-infected patients at a mean age of 45.6 years”. Due to the very small number of breast cancer, the median would be more appropriate. The median age of breast cancer in the general population could be added to support your discussion.

6. No data was presented according to HIV infection such as anti-retroviral therapy, CD4 cell count… If no such information was available in the database,
this limitation should be discussed.

Minor comments

1. Statistical analysis: the presentation of SIR calculation is difficult to understand. What would you say by “the cancer incidence of the control group in the general population”. What age strata were used for stratum-specific incidence rates of cancer for the entire population, and what was the corresponding age structure of the HIV population.

2. Table 1: the p-values for age and gender are clearly wrong as the distributions in the two groups are the same by construction. The p-values are 1.0 and not 0.5.

3. Table 1/ Table 2: as only 3 HIV-infected and 3 HIV-uninfected individuals had a modified Charlson index >10, this category should be grouped with the 6-10 category.

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