Reviewer's report


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Reviewer: Archie W Bleyer

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Major

Abstract: Describing the incidence rates for cancers over an age range (0-39 years) that have a dramatic change over the range (as described in the second paragraph of Background) is not appropriately informative and should be avoided. The results section should be rewritten accordingly.

Nomenclature: incidence rates were not measured as per million person years but as per million persons per year; the difference may seem subtle but is real.

Background: x age-standardized per million person years needs more definition: standardized to what ages or age intervals (single years? 5-years?) and to what population (northern England? whole of UK? world population as mentioned in Methods?) and year of census.

Methods and Table 2: standardizing incidence to the world population may not be appropriate to any country; should not the population being studied serve as the standard, and if so a specific year or years of census (mentioned above).

Methods: Observed survival rates, not relative to the population at large, were used in the analyses. Whereas this is not a problem in pediatric and young adults, as the age approaches 35-39, relative and observed survival diverge and can have the effect or worsening the survival due to competing (non-cancer) causes of death when observed rates are used; although osteosarcoma and Ewing sarcoma are much less common in the 30-39 year age range than in 15-29 year range, and probably do not have this problem, chondrosarcoma and 'other' bone tumors are more common in the older end of the AYA range and may be affected by the use of observed rates. The data in the oldest age groups studied should be tested for this potential effect before interpreting a worse survival in the oldest age groups studied.

Discussion, para. 2: The claim that “for osteosarcoma and chondrosarcoma, there was … no evidence that older cases (aged 15 – 39 years) had worse outcome than childhood cases (aged 0 – 14 years)” cannot be made for chondrosarcoma due to the virtual absence of this cancer in the younger age group.

Minor
Abstract: regression in Methods should be plural since two types of regressions are described.

Sarcoma in Ewing sarcoma should not be capitalized as it is on page 7.

Page 11: The semantic of describing a worse outcome for Ewing sarcoma cases in older ages as a “highlight” does not accurate (more like a low light). Ditto at the bottom of the page.

Table 3: Age group is not specified

Data: expressing survival rates to 2 decimal places is unnecessary; with the number of patients in each subgroup whole numbers suffice

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