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S1 Doc: REMARK checklist

Introduction

1. State the marker examined, the study objectives, and any prespecified hypotheses.

Materials and Methods

Patients

- 2. Describe the characteristics (e.g. disease stage or comorbidities) of the study patients, including their source and inclusion and exclusion criteria.
- 3. Describe treatments received and how chosen (e.g. randomised or rule-based).

Specimen characteristics

4. Describe type of biological material used (including control samples), and methods of preservation and storage.

Assay methods

5. Specify the assay method used and provide (or reference) a detailed protocol, including specific reagents or kits used, quality control procedures, reproducibility assessments, quantitation methods, and scoring and reporting protocols. Specify whether and how assays were performed blinded to the study end point.

Study design

- 6. State the method of case selection, including whether prospective or retrospective and whether stratification or matching (e.g. by stage of disease or age) was employed. Specify the time period from which cases were taken, the end of the follow-up period, and the median follow-up time.
- 7. Precisely define all clinical end points examined.
- 8. List all candidate variables initially examined or considered for inclusion in models.
- 9. Give rationale for sample size; if the study was designed to detect a specified effect size, give the target power and effect size.

Statistical analysis methods

- 10. Specify all statistical methods, including details of any variable selection procedures and other model-building issues, how model assumptions were verified, and how missing data were handled.
- 11. Clarify how marker values were handled in the analyses; if relevant, describe methods used for cutpoint determination.

Results

Data

- 12. Describe the flow of patients through the study, including the number of patients included in each stage of the analysis (a diagram may be helpful) and reasons for dropout. Specifically, both overall and for each subgroup extensively examined report the numbers of patients and the number of events.
- 13. Report distributions of basic demographic characteristics (at least age and sex), standard (disease-specific) prognostic variables, and tumour marker, including numbers of missing values.

Analysis and presentation

- 14. Show the relation of the marker to standard prognostic variables.
- 15. Present univariate analyses showing the relation between the marker and outcome, with the estimated effect (e.g. hazard ratio and survival probability). Preferably provide similar analyses for all other variables being analysed. For the effect of a tumour marker on a time-to-event outcome, a Kaplan –Meier plot is recommended.
- 16. For key multivariable analyses, report estimated effects (e.g. hazard ratio) with confidence intervals for the marker and, at least for the final model, all other variables in the model.
- 17. Among reported results, provide estimated effects with confidence intervals from an analysis in which the marker and standard prognostic variables are included, regardless of their significance.

Did the reporting of prognostic studies of tumour markers improve since the introduction of REMARK guideline? A comparison of reporting in published articles.

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18. If done, report results of further investigations, such as checking assumptions, sensitivity analyses, internal validation.

Discussion

- 19. Interpret the results in the context of the prespecified hypotheses and other relevant studies; include a discussion of limitations of the study.
- 20. Discuss implications for future research and clinical value.

NOTE:

This table corresponds to Table 1: Reporting recommendations for tumour MARKer prognostic studies (REMARK) of the publicly available REMARK guideline [1]. According to the Journal, that manuscript was published under CC-BY license.

1. McShane LM, Altman DG, Sauerbrei W, Taube SE, Gion M, Clark GM *et al.* REporting recommendations for tumour MARKer prognostic studies (REMARK). Br J Cancer. 2005; 93(4):387-91. doi:10.1038/sj.bjc.6602678 (www.nature.com/bjc/journal/v93/n4/full/6602678a.html)