11. Quantitative variables: Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why.

Example ‘‘Patients with a Glasgow Coma Scale less than 8 are considered to be seriously injured. A GCS of 9 or more indicates less serious brain injury. We examined the association of GCS in these two categories with the occurrence of death within 12 months from injury’’.

Explanation

Investigators make choices regarding how to collect and analyse quantitative data about exposures, effect modifiers and confounders. For example, they may group a continuous exposure variable to create a new categorical variable (see Box 4). Grouping choices may have important consequences for later analyses. We advise that authors explain why and how they grouped quantitative data, including the number of categories, the cut-points, and category mean or median values. Whenever data are reported in tabular form, the counts of cases, controls, persons at risk, person-time at risk, etc. should be given for each category. Tables should not consist solely of effect-measure estimates or results of model fitting. Investigators might model an exposure as continuous in order to retain all the information. In making this choice, one needs to consider the nature of the relationship of the exposure to the outcome. As it may be wrong to assume a linear relation automatically, possible departures from linearity should be investigated. Authors could mention alternative models they explored during analyses (e.g., using log transformation, quadratic terms or spline functions). Several methods exist for fitting a non-linear relation between the exposure and outcome. Also, it may be informative to present both continuous and grouped analyses for a quantitative exposure of prime interest. In a recent survey, two thirds of epidemiological publications studied quantitative exposure variables. In 42 of 50 articles (84%) exposures were grouped into several ordered categories, but often without any stated rationale for the choices made. Fifteen articles used linear associations to model continuous exposure but only two reported checking for linearity. In another survey, of the psychological literature, dichotomization was justified in only 22 of 110 articles (20%)