Dear Sir / Madam

Conclusions methodologically unsound and risks unnecessary and avoidable deaths in patients

The recent collaborative individual patient meta analysis on PCI versus CABG by Head et al (2018)[1] is a very welcome addition to the literature, establishing convincingly the superiority of CABG over PCI on the important outcome of all cause mortality (HR 1·20, 95% CI 1·06–1·37; p=0·004). However the conclusions offered by the authors are methodologically incorrect and their publication in a major journal surprising.[2]

The challenges of subgroup analyses are well known including to readers of this journal [3,4,5] and must be established on the basis of both prespecified biological plausibility and statistical rigour. Accounting for multiplicity, none of the tests for interaction undertaken by the authors are statistically significant. Thus the correct interpretation is that the main effect (benefit for CABG over PCI) should be applied to all subgroups including patients with left main disease. The suggestion in the paper by Head et al (2018) that the lack of benefit found in many subgroups supports a conclusion differing from this is methodologically unsound and risk unnecessary and avoidable deaths in patients. These points should be corrected.

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