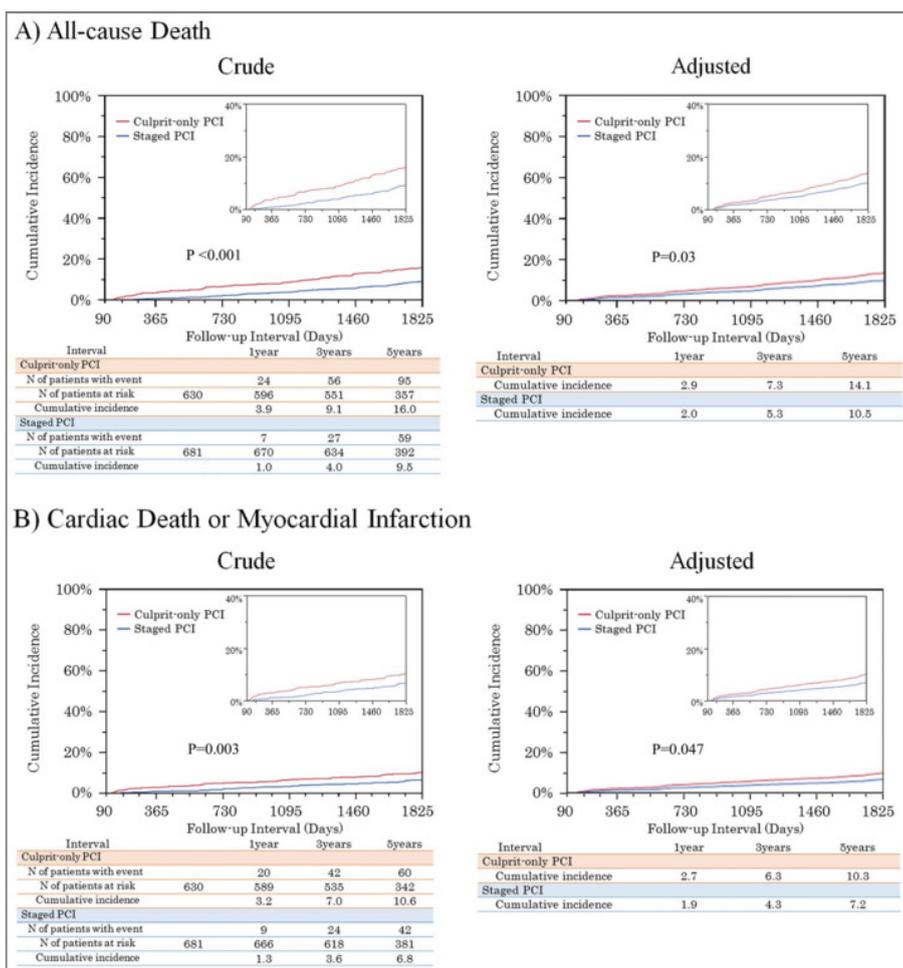


## The case for staged multivessel PCI

When cardiologists treat heart attack patients with percutaneous coronary intervention (PCI), they are faced with a difficult choice: should they just unblock the “culprit” coronary artery that is to blame for the heart attack and keep the procedure to a minimum, or is it better to also address other lesions where atherosclerosis is present? It is a critical question for the roughly fifty percent of heart attack patients that have “non-culprit” atherosclerosis in other arteries.

A [study published in the February issue](#) of *Circulation Journal* by Japanese cardiologists strongly suggests that the latter is the better approach. The team, led by Hiroki Shiomi, a cardiovascular surgeon at Kyoto University, studied 1311 patients and found that the 681 receiving staged multivessel PCI, in which the additional PCI procedures were carried out, on average, 13 days after the primary PCI, had only a 9.5% incidence of death from all causes over a five-year period, compared to a 16.5% incidence for the 630 patients that received culprit-only PCI. Cardiac death and myocardial infarction rates showed a similarly significant advantage in the staged multivessel group over a five-year span.

Shiomi says that using staged multivessel PCI means some unnecessary procedures are carried out—and with them, extra costs incurred. “But the advantage is the complete reconstruction of circulation,” he says. The current trend in Japan, he says, is to think of staged multivessel PCI as the mainstream approach.



Philippe Gabriel Steg, a cardiologist at Hôpital Bichat in Paris, says, “The results are interesting and striking but as the authors appropriately point out, it is very difficult to rule out residual confounding in such an observational design analysis and, indeed, many characteristics suggest that the relatively small group subjected to complete stage revascularization was a group at somewhat lower risk than the patients in whom only the culprit PCI was treated.” Steg recommends waiting for the results of randomized trials such as the ongoing large COMPLETE trial, for a decisive conclusion.

Steg also warns that the contrast between complete staged revascularization and culprit only revascularization hinges on the management strategy adopted in the “conservative arm.” “The guidelines recommend non-invasive assessment of these patients, but if conservative management was truly conservative, this may contribute to a large difference in outcomes between groups,” he says.

Shiomi says the next debate will be whether the staged multivessel PCI strategy he used is better than a one-time multivessel procedure in which non-culprit PCI is carried out at the same time as the primary PCI.

Figure 2. Crude and adjusted clinical outcome: staged percutaneous coronary intervention (PCI) group vs. culprit-only PCI group. (A) All-cause death, and (B) composite of cardiac death or myocardial infarction (MI). The crude cumulative incidences of and adjusted risks for all-cause death and composite of cardiac death or MI were significantly higher in the culprit-only PCI group (red lines) than in the staged PCI group (blue lines).