Evaluating Off-Pump Coronary Artery Bypass Grafting

To the Editor:

We read with interest the article by Sedrakyan et al.1 The authors found that off-pump surgery was associated with a reduced risk of stroke, atrial fibrillation and surgical wound infections as compared with on-pump. If the results were presented as events, the reductions were translated into 10 fewer patients with stroke, 80 with atrial fibrillation and 40 wound infections per 1000 coronary artery bypass grafts using off-pump. There were also 10 additional reinterventions with off-pump surgery (median 1-year follow-up). This study was well-designed and conducted, and it clearly demonstrated the limitations of randomized controlled trials that were included in this metaanalysis.

We would like to emphasize where we stand about off-pump surgery, the quality of studies included in that metaanalysis and that we cannot easily generalize the conclusions. The sample size of the studies that were conducted in that scientific field were small, so the effect sizes and the power of these studies were also small. Confusion still exists about the clinical advantages of the off-pump approach.

We need more strict criteria for defining the measured outcomes. It is clear that the flexibility in design, definitions and outcomes is great in these studies.3 The findings might be more precise when the outcomes are universally agreed (eg, death) rather than the situations where special definitions are made (eg, the definition of myocardial infarction is made only with rising creatine phosphokinase, new Q-wave or both, the definition of stroke as transient ischemic attack, permanent stroke or else). More high-quality randomized controlled trials (with adequate power) have to be conducted in this field.

The majority of patients in these trials were low-to-moderate risk patients undergoing one or double-vessel bypass, which resulted in an overall low adverse event rate. This means that much larger studies and studies with high-risk patients with multiple vessel disease are required to prove that a difference exists between treatment strategies. High-risk patients with multiple vessel disease are supported to benefit more from the off-pump technique.

The outcomes such as death, stroke, myocardial infarction, etc, must be examined in 1 and more years (3 and 5) with more events (for example at least 100 events). Caution must be exercised in interpreting the results because of selection bias, publication bias and time lag bias.

We need randomized controlled trials and enhanced research standards to diminish bias.3

Disclosures

None.

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