

The 'evidence' of 'no evidence': about a meta-analysis

La "Evidencia" de la "No Evidencia": a propósito de un metaanálisis

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We have recently seen the publication of a meta-analysis¹ of studies on myocardial revascularization including percutaneous coronary intervention (PCI) or coronary artery bypass graft (CABG) versus optimal medical treatment (OMT) to determine if the findings of increased non-cardiac death reported in the ISCHEMIA EXTENDED study² could be replicated in other studies.

The authors reviewed 18 randomized controlled trials (RCT) comparing CABG, PCI versus OMT and concluded that there is no "evidence" of increased non-cardiac death with revascularization procedures compared to OMT. Therefore, the findings of the ISCHEMIA study should be considered a type I statistical error, which means accepting that after randomizing 5179 patients, things sometimes happen by chance.

Despite the authors conducted several sensitive statistical analyses, we believe that the study in question has several limitations, which prompted a letter to the editor of the journal³.

LIMITATIONS

#1 - The analysis includes studies on PCI performed three decades ago, that is, with angioplasty techniques that are no longer widely used or even considered by the authors themselves as "poor practice" based on the actual medical standards (BARI, MASSI, MASS II, COURAGE, RITA 2) where PCI used either balloon angioplasty or conventional stents (BMS)¹.

The significant bias is that if we are analyzing the findings of the ISCHEMIA study², we should only consider those that used the same techniques (DES in 100% of cases and multiple stents in most).

It would be best to draw comparisons to a similar study, the COURAGE trial with a 97% use of BMS⁴, and where non-cardiac death was not significantly different between PCI and OMT but numerically higher (0.7%) in the OMT group (5.4% vs 6.1% for PCI and OMT, respectively), that is, exactly the opposite of what the ISCHEMIA findings tell us⁵.

#2 The authors (1) did not include the REVIVED study on DES vs OMT in patients with ejection fractions < 36%⁶.

In the REVIVED study, non-cardiac death was numerically higher again in the DES group compared to OMT with a significantly higher rate of cancer in the DES group, almost 5 times higher⁵. This despite the fact that the reduction of cardiac death and spontaneous myocardial infarction favored the DES treatment. The difference in the rate of cancer between the groups included in the REVIVED should make us less optimistic on the long-term outcomes of PCI in this study.

#3 The authors¹ should have acknowledged and cited the EXCEL study⁷ that compared DES and CABG. Once again, in this study there was a higher rate of non-cardiac death in the group treated with PCI. The authors of this study⁷ also suggested that it was a type I statistical error.

If the possibility of type I statistical error were so common, it would be impossible to analyze the results of most revascularizations performed over the past 30 years, and everything we have said and continue to say today would lack scientific value since it could all be attributed to "chance."

In sum, to draw conclusions from a study, the samples must be homogeneous, and meta-analyses should include contemporary studies in a field that has changed so dramatically over the past 20 years as percutaneous coronary interventions.

In other words, if we are using 100% DES as the default strategy in almost all cases, we should only analyze studies that utilize this revascularization strategy.

Anything else brings just brings confusion to the table and prevents us from reaching more robust and scientifically valid conclusions on a topic that is of utmost importance in our medical specialty.

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