

# Letters

## TO THE EDITOR

### Coronary Occlusion and Ischemia Reduction



I read with great interest the article by Jang et al. (1) and the accompanying editorial by Barbato and Wijns (2) regarding the long-term survival benefit of revascularization compared with medical therapy in patients with coronary chronic total occlusion and well-developed collateral circulation. According to the authors, it seems as though all patients received “modern medical therapy,” and because this was a retrospective study, there was no requirement for informed consent.

I congratulate the authors for a very nice piece of work, but I would like to remind them that the term they use (CTO), standing for chronic “total” occlusion, might instead be abbreviated CCO, standing for chronic coronary occlusion. “Total” is redundant because all occlusions are total.

Several years ago, I wrote an article on coronary artery collaterals (3). Before and since writing that article, I have always believed that collaterals do not appear angiographically unless ischemia is present in the distribution of those collaterals. I have also never believed that if the collateral provides excellent blood flow to the ischemic zone, ischemia will disappear and the collaterals will remain. To put it somewhat differently, in my opinion, visible collaterals only exist if ischemia is present, and if ischemia is present, the myocardium supplied by the collateral vessel is viable.

All collateral seen angiographically may be protective against or limit infarction but may not provide adequate flow to prevent myocardial ischemia and regional myocardial dysfunction. Thus, I do not believe that all angiographically visible collaterals eliminate myocardial ischemia, but they may make ischemia more difficult to provoke.

I could not find out whether or not the patients evaluated in this paper (1) had post-percutaneous coronary intervention (PCI) angiography to determine the presence or absence of collaterals after the revascularization was accomplished. This would have been an important observation that would indicate

that collaterals are only present when the demand (ischemia) for them is present.

The conclusion that the authors make, that “aggressive revascularization by surgery or PCI may reduce the risk of mortality and MACE [major adverse cardiac events] by eliminating ‘ischemia’,” seems reasonable to me, but I would also propose that the risk of mortality and MACE may be reduced if “ischemia” is eliminated by aggressive medical therapy. In fact, I cannot think of a single incidence in which the continued presence of ischemia is good for the patient.

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<http://dx.doi.org/10.1016/j.jcin.2015.03.021>

Please note: Dr. Conti has reported that he has no relationships relevant to the contents of this paper to disclose.

#### REFERENCES

1. Jang WJ, Yang JH, Choi SH, et al. Long-term survival benefit of revascularization compared with medical therapy in patients with coronary chronic total occlusion and well-developed collateral circulation. *J Am Coll Cardiol Intv* 2015;8:271-9.
2. Barbato E, Wijns W. Are we ready for new paradigm shift in percutaneous revascularization of chronically occluded vessels with well-developed collaterals?: from leaving 'em all to stenting 'em all. *J Am Coll Cardiol Intv* 2015;8:280-2.
3. Conti CR. Coronary artery collaterals. *Clin Cardiol* 2010;33:188-9.

#### REPLY: Coronary Occlusion and Ischemia Reduction



My colleagues and I appreciated the comments of Professor Conti regarding the clinical significance of revascularization for the treatment of coronary chronic total occlusion (CTO) with well-developed collateral circulation. We read with interest the editorial comment provided by Barbato and Wijns (1) in addition to the letter to the editor by Conti. It is an undeniable fact that successful revascularization of CTO is associated with a survival benefit, but the greatest challenge of this aggressive CTO treatment is the low predictability of successful revascularization and the relatively high possibility of fatal complications. In this sense, we agree with Barbato and Wijns' opinion that accurate risk stratification and better selection criteria for patients undergoing CTO