**META-ANALYSIS OF TRIALS INVOLVING CHRONIC TOTAL OCCLUSIONS**

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Background: Chronic total occlusions (CTO) comprise the most complex and challenging coronary lesions for percutaneous coronary intervention (PCI). In addition, PCI for a CTO carries higher risk for complications. The long term benefits of a successful PCI recanalization of a CTO over the medical management alone are not clear as the studies have shown conflicting results in this regard. The goal of this study was to clarify this issue buy performing meta-analysis of available trials.

Methodology: Using the major electronic data bases, we searched for studies (randomized or observational) comparing long-term cardiac death, major adverse cardiovascular events (MACE) and target vessel revascularization (TVR) between patients who underwent PCI recanalization of a CTO versus those treated with medical management alone.

Results: We identified 22 observational studies comparing the desired clinical parameters between patients with successful CTO recanalization and those managed conservatively as a result of attempted but failed PCI. Our results showed that successful recanalization of a CTO results in improved cardiac mortality (RR of 0.56, CI 0.47-0.68, p-value<0.001), lower rates of MACE (RR of 0.70, CI 0.60-0.83, p-value<0.001) and reduced needs for subsequent CABG (RR of 0.28, CI 0.24-0.32, p-value<0.001). The difference in long-term mortality remained statistically significant even after the adjustment for procedure related complications and intra-hospital deaths.

Conclusion: Our analysis confirms the benefits of a successful PCI recanalization of a CTO vs. unsuccessful PCI. However, this meta-analysis is limited due to lack of any randomized trials and substantial heterogeneity in the trials and populations studied.