

Sex-differences in outcomes after percutaneous coronary intervention of chronic total occlusions: insights from a large single-center registry

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Introduction: Patients undergoing PCI of chronic total occlusions (CTO) are at high risk of both periprocedural and post-procedural adverse events. Whether sex-differences in outcomes exist after PCI of CTO remains unclear.

Purpose: We sought to investigate sex-differences in outcomes after CTO-PCI among an unselected real-world cohort of patients.

Methods: In our single-center retrospective study, patients who underwent elective CTO intervention from January 2000 to December 2019 were included. The primary endpoint of interest was major adverse cardiac events (MACE) defined as the composite of death, myocardial infarction (MI), and target vessel revascularization (TVR) at 1 year of follow-up.

Results: A total 1897 patients were included of which 368 were women

(19.4%). Women were older (67 ± 11.3 years vs. 62.6 ± 10.9 years) and had a higher prevalence of comorbidities including diabetes and chronic kidney disease. Women had higher rates of procedure-related complications including increased risk of post-procedural bleeding requiring blood transfusion (3.0% vs 1.1%; $p=0.007$), and acute vessel closure (1.36% vs 0.2%; $p=0.009$). In multivariable-adjusted models for baseline confounders, female sex was associated with higher risk of MACE and TVR (Table 1).

Conclusion: Gender differences in CTO management are observed, with fewer females going for CTO revascularization in contemporary practice. Female sex is associated with procedural-related complications, higher MACE, and TVR even after successful CTO intervention.

Table 1. Clinical Outcomes at 1 Year

Variable	Overall	Female (N=368, 19.40%)	Male (N=1529, 80.60%)	Log-rank P	Unadjusted HR (95% CI)	P-value	Adjusted HR (95% CI)	P-value
Major adverse cardiac events	153 (14.15%)	40 (18.49%)	113 (13.06%)	0.034	1.47 (1.03 - 2.12)	0.035	1.59 (1.03 - 2.45)	0.035
Death	20 (1.84%)	8 (3.68%)	12 (1.39%)	0.021	2.75 (1.12 - 6.73)	0.027	2.82 (0.89 - 8.95)	0.078
Myocardial infarction	21 (1.98%)	7 (3.30%)	14 (1.66%)	0.112	2.05 (0.83 - 5.09)	0.120	2.02 (0.64 - 6.37)	0.232
Target vessel revascularization	124 (12.51%)	29 (14.62%)	95 (11.99%)	0.225	1.29 (0.85 - 1.96)	0.226	1.69 (1.03 - 2.77)	0.036
Stent thrombosis	6 (0.53%)	2 (0.97%)	4 (0.42%)	0.387	2.08 (0.38 - 11.4)	0.397	2.62 (0.40 - 17.0)	0.313