Stehlik J, Hertz MI. The Registry of the International Society for Heart and Lung Transplantation: thirteenth official pediatric lung and heart-lung transplantation report—2010. *J Heart Lung Transplant* 2010;29:1129–1141.
2. Sze S, Pellicori P, Kazmi S, Rigby A, Cleland JG, Wong K, Clark AL. Prevalence and prognostic significance of malnutrition using 3 scoring systems among outpatients with heart failure: a comparison with body mass index. *JACC: Heart Fail* 2018;6:476–486.

https://doi.org/10.1016/j.amjcard.2020.12.056

Meta-Analysis of Drug-Coated Balloons Versus Drug-Eluting Stents for Small Vessel De-Novo Coronary Artery Disease

Drug-coated balloons (DCB) are innovative tools for the management of coronary artery disease.[1] They have been recognized as an effective treatment strategy for treating both bare metal and drug-eluting stents (DES) restenosis (class 1A level of evidence).[1] Several randomized clinical trials (RCTs) assessed the safety and efficacy of DCB versus DES for the treatment of small vessel (defined as <3 mm in diameter) de-novo coronary artery disease (SV-dCAD).[2-5] Recently, data from PCCOLETO II (Drug-Coated Balloon Versus Drug-Eluting Stent for Small Coronary Vessel Disease) and long-term data from BASKET-SMALL 2 (Drug-Coated Balloons Versus Drug-Eluting Stents for Small Coronary Vessel Disease) have been published and refueled the interest in DCB as a possible alternative strategy to DES in managing SV-dCAD.[2,4] Therefore, we conducted a meta-analysis of RCTs to compare the clinical outcomes of DCB versus DES.

A comprehensive search of the electronic database was performed for RCTs comparing DCB versus DES in the treatment of SV-dCAD. The outcomes of interest included major adverse cardiovascular events (MACE), all-cause mortality, myocardial infarction (MI), and target vessel revascularization (TVR). Results were pooled using the random effect model. The relative risks (RR) with 95% confidence intervals (CI) are reported.

A total of 4 RCTs with 1,257 patients (DCB = 632, DES = 625) with a median duration of follow-up of 12 months and 49% females were included. There was no difference between DCB and DES in MACE (RR = 1.15, 95% CI 0.73 to 1.81, p = 0.55, I^2 = 23%), all-cause mortality (RR = 1.03, 95% CI 0.63 to

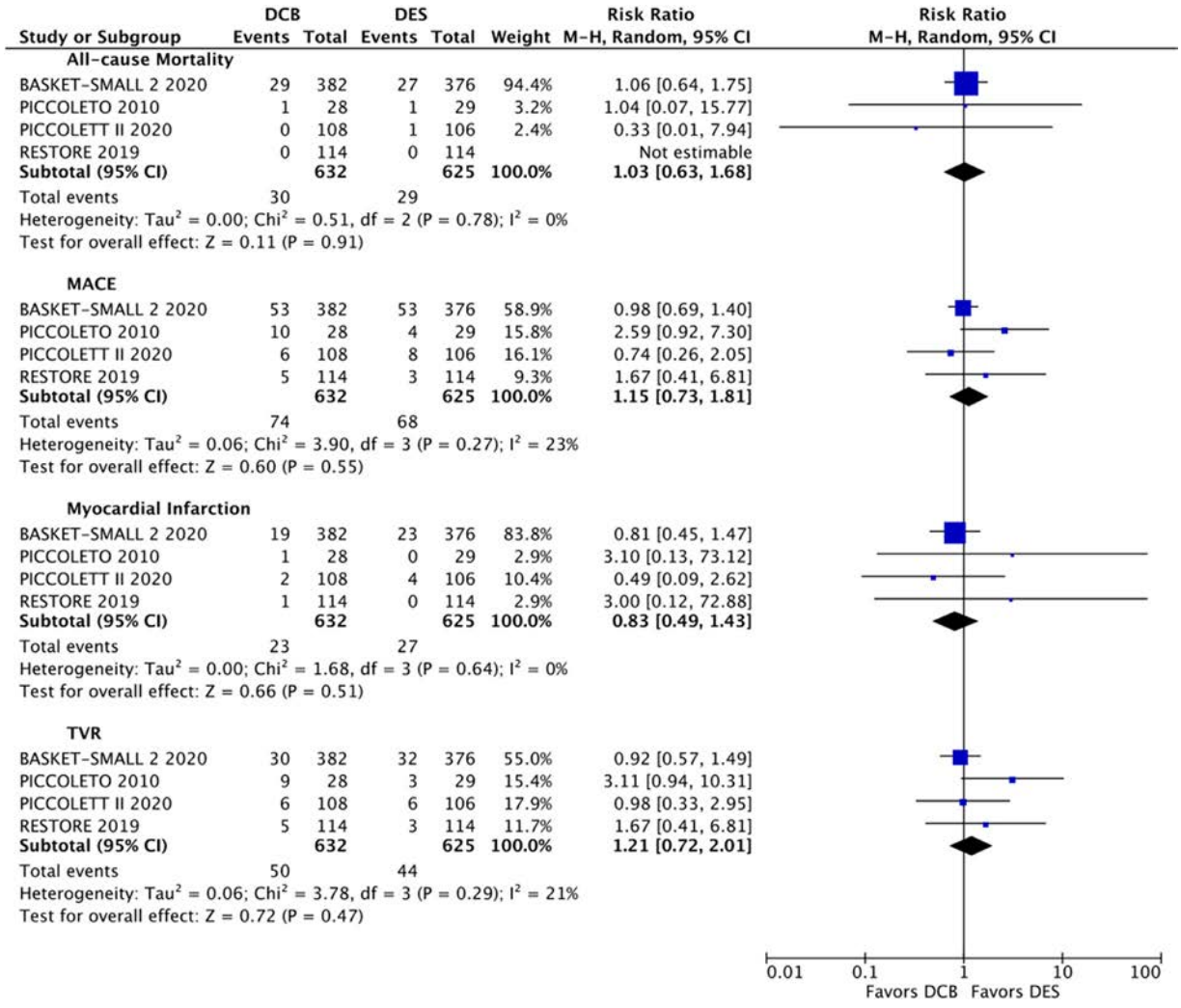

Figure 1. Forest plot for the outcomes.
DCB = drug-coated balloons; DES = drug-eluting stents; MACE = major adverse cardiovascular events, TVR = target vessel revascularization.

1.68, p = 0.78, I^2 = 0%), myocardial infarction (RR = 0.83, 95% CI 0.49 to 1.43, p = 0.51, I^2 = 0%), and TVR (RR = 1.21, 95% CI 0.72 to 2.01, p = 0.47, I^2 = 21%) (Figure 1).

Based on the currently available data from RCTs, which is summarized in the current meta-analysis, DCB is noninferior to DES in the treatment of SV-dCAD. This makes DCB an attractive treatment strategy in this patient population. The primary benefit of DCB is related to the lack of stent elements left-over inside the coronary circulation. This eliminates the risk of stent thrombosis, which has been the main dreaded complication of DES.[2-5] Another vital benefit of DCB is shortening the duration of dual antiplatelet therapy to 4 weeks, which is a significant gain in patients at high risk of bleeding who cannot tolerate a prolonged course of dual antiplatelet therapy.[2–5]

In conclusion, the currently available data from RCTs show comparable outcomes for DCB and DES in SV-dCAD and supports DCB as an alternative treatment to DES in patients with small vessels de-novo coronary artery disease.

Disclosure

The authors have no disclosures to report.

Mohamed M.G. Mohamed, MD[a]
Maryam Saleem, MD[b]
Babikir Kheiri, MD[c]
Mohammed Osman, MD[d]*

[a] SSM Health St. Mary's Hospital, St. Louis, Missouri
[b] Division of Cardiovascular Health and Disease, University of Cincinnati College of Medicine, Cincinnati, Ohio
[c] Knight Cardiovascular Institute, Oregon Health & Science University, Portland, Oregon
[d] Division of Cardiology, West Virginia University School of Medicine, Morgantown, West Virginia
19 December 2020

1. Jeger RV, Eccleshall S, Wan Ahmad WA, Ge J, Poerner TC, Shin ES, Alfonso F, Latib A, Ong PJ, Rissanen TT, Saucedo J, Scheller B, Kleber FX. Drug-coated balloons for coronary artery disease: third report of the international DCB consensus group. *JACC Cardiovasc Interv* 2020;13:1391–1402.
2. Cortese B, Di Palma G, Guimaraes MG, Piraino D, Orrego PS, Buccheri D, Rivero F, Perotto A, Zambelli G, Alfonso F. Drug-coated balloon versus drug-eluting stent for small coronary vessel disease: PICCOLETO II randomized clinical trial. *JACC Cardiovasc Interv* 2020;13:2840–2849.
3. Cortese B, Micheli A, Picchi A, Coppolaro A, Bandinelli L, Severi S, Limbruno U. Paclitaxel-coated balloon versus drug-eluting stent during PCI of small coronary vessels, a prospective randomised clinical trial. The PICCOLETO study. *Heart* 2010;96:1291–1296.
4. Jeger RV, Farah A, Ohlow MA, Mangner N, Möbius-Winkler S, Weilenmann D, Wöhrle J, Stachel G, Markovic S, Leibundgut G, Rickenbacher P, Osswald S, Cattaneo M, Gilgen N, Kaiser C, Scheller B. Long-term efficacy and safety of drug-coated balloons versus drug-eluting stents for small coronary artery disease (BASKET-SMALL 2): 3-year follow-up of a randomised, non-inferiority trial. *Lancet* 2020;396:1504–1510.
5. Tang Y, Qiao S, Su X, Chen Y, Jin Z, Chen H, Xu B, Kong X, Pang W, Liu Y, Yu Z, Li X, Li H, Zhao Y, Wang Y, Li W, Tian J, Guan C, Xu B, Gao R. Drug-coated balloon versus drug-eluting stent for small-vessel disease: the RESTORE SVD China randomized trial. *JACC Cardiovasc Interv* 2018;11:2381–2392.

https://doi.org/10.1016/j.amjcard.2020.12.071

Meta-Analysis of the Effect of Aspirin on Mortality in COVID-19

Repurposing of existing medications has widely been used in studies since the emergence of coronavirus disease 2019 (COVID-19). Besides dexamethasone in selected patients,[1] no medical treatment to date has been shown to improve mortality in patients with COVID-19 infection. Aspirin is associated with reduced mortality and lower risk of acute respiratory distress syndrome in critically ill patients without COVID-19.[2,3] Although the exact mechanism behind this effect remains unclear, possible protective effects of aspirin may be related to its antithrombotic, anti-inflammatory, and immunomodulation effects.[3] As severe COVID-19 infection is mainly a multisystem inflammatory process, use of aspirin can theoretically provide positive outcomes. However, the role of aspirin in patients with COVID-19 is not clear and has not adequately been studied. In this meta-analysis, we report the association between aspirin use and mortality in COVID-19.

We searched PubMed database looking for relevant articles using ("COVID-19" and "aspirin") and ("SARS-CoV-2" and "aspirin") from inception until December 19, 2020. No language restriction was applied. Inclusion criteria were (1) clinical trials or cohort studies, (2) the study population included patients with confirmed COVID-19 infection, (3) use of aspirin was reported in the study, (4) mortality among aspirin users was reported or could be calculated and compared with nonaspirin users. All other studies were excluded. Review Manager 5.4.1 was used to perform a random effect model analysis to compare mortality between patients with COVID-19 infection who use aspirin compared with those who do not. Mantel-Haenszel risk ratio with its 95% confidence intervals was calculated. Cochran's Q and I^2 index were used for heterogeneity estimation. An I^2 index <25% was considered to be low, an I^2 index between 25% and 80% was considered to be moderate, and an I^2 index >80% was considered to be high. Sensitivity analysis was done by excluding 1 study at a time.

Initial search resulted in 112 articles. After applying our inclusion criteria and deduplications, only 3 studies with a total of 1,054 patients were included in the analysis.[4–6] Characteristics of the included studies are summarized in (Table 1). About 19.2% of these patients were aspirin users. Mortality among aspirin users was 22.6% compared with mortality of 18.3% among nonaspirin users (risk ratio 1.12, 95% confidence intervals [0.84, 1.50]). I^2 index was 0%, suggestive of low heterogeneity. Due to the small number of studies (<10), small-study bias was not assessed as the analysis was underpowered to detect such bias. Sensitivity analysis yielded consistent results (Figure 1).

The results of this analysis suggest no association between the use of aspirin and mortality in patients with COVID-19. Although patients on aspirin tend to have more risk factors for severe COVID-19 infection (eg, older age, pre-existing coronary artery disease, diabetes mellitus, etc), the low heterogeneity in this analysis despite differences in characteristics of the population of the included studies likely suggests no protective effect of aspirin among different groups of patients. However, more studies are needed to confirm this finding.

Funding: None.