**INTRODUCTION**

Current guidelines recommend at least 6 months of dual antiplatelet therapy (DAPT) with aspirin and a P2Y12 inhibitor after a DES implantation in patients with stable Coronary Artery Disease (CAD). While for patients with ACS and undergoing PCI guidelines still recommend at least 12 months of DAPT therapy. (1,2) A shorter duration of DAPT can be considered for patients with high risks for bleeding events or have bleeding while on treatment. In such high-risk patients, a 3 months course of DAPT can be considered if they have stable CAD, while a 6 months course is appropriate if they have recent ACS. (1,2) European guidelines even recommend a 1-month DAPT in patients with stable CAD if bleeding risks are higher. (2) Similarly, a longer duration can be considered in patients who are at high risk for ischemic events. (1,2)

Trials investigating short duration (≤ 6 months) to longer duration (≥ 12 months) DAPT have shown controversial results. Some studies comparing 3 to 6 months vs 12 or more months of DAPT have shown no difference in ischemic events with similar or slightly higher bleeding events with longer DAPT. (3,4,5,6,7,8) While, other trials have shown trends of increased risk of ischemic events in short term compared to long term DAPT. (9) Multiple meta-analysis of trials comparing short term vs long term DAPT had shown similar efficacy between the two groups but with increased bleeding in the long term DAPT group. (10,11,12) The risk of ischemic events especially MI cannot be completely ignored as seen in some meta-analysis. (13,14,15, 16) Interestingly in some of the meta-analysis there was concern for increase in non-cardiovascular death in the long term DAPT group which was shown to be correlating with increased risk of bleeding in that group. (17, 18) The risk of bleeding remains substantial in patients on DAPT with 1-year bleeding risk in recent trials ranging from 0.3 % to 2.8 %. (3) Majority of these trials excluded high bleeding risk patients. In trials which included patients with high bleeding risk 1-year bleeding was reported somewhere between 3.5 % to 7.2 %. (19)

Whatever benefits of DAPT in reducing ischemic event is offset by increased bleeding events. In all the above trials short term DAPT vs followed by aspirin monotherapy. In order to decrease ischemic events along with bleeding events it was later proposed that a short term DAPT followed by monotherapy with a P2Y12 inhibitor might work. (20, 21,22,23) In vitro studies have reported that aspirin offers limited anti-platelet effect in the presence of strong P2Y12 receptor blockade. (24) In healthy human volunteers clopidogrel and ticagrelor monotherapy when compared to dual therapy in combination with aspirin led to comparable anti-platelet effects. (25) In a direct comparison of anti-platelet monotherapy, clopidogrel was associated with reduced ischemic risk with similar bleeding profile when compared to aspirin alone. (26, 27)

Recently few randomized controlled trials are published with short term DAPT followed by P2Y12 monotherapy at-least for 12 months compared to 12 months of DAPT therapy (28,29,30,31). Some of them have shown no difference between the two groups in ischemic events with decreased bleeding events. (29,30) Given the conflicting results we decided to do a meta-analysis to compare short DAPT therapy followed by P2Y12 monotherapy vs 12 months of DAPT therapy.

1. Levine GN, Bates ER, Bittl JA, Brindis RG, Fihn SD, Fleisher LA, Granger CB, Lange RA, Mack MJ, Mauri L, Mehran R, Mukherjee D, Newby LK, O'Gara PT, Sabatine MS, Smith PK, Smith SC Jr. 2016 ACC/AHA Guideline Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease: A Report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. J Am Coll Cardiol. 2016 Sep 6;68(10):1082-115.
2. Valgimigli M, Bueno H, Byrne RA, Collet JP, Costa F, Jeppsson A, Jüni P, Kastrati A, Kolh P, Mauri L, Montalescot G, Neumann FJ, Petricevic M, Roffi M, Steg PG, Windecker S, Zamorano JL, Levine GN; ESC Scientific Document Group; ESC Committee for Practice Guidelines (CPG); ESC National Cardiac Societies. 2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS: The Task Force for dual antiplatelet therapy in coronary artery disease of the European Society of Cardiology (ESC) and of the European Association for Cardio-Thoracic Surgery (EACTS). Eur Heart J. 2018 Jan 14;39(3):213-260.
3. Kim BK1, Hong MK, Shin DH, Nam CM, Kim JS, Ko YG, Choi D, Kang TS, Park BE, Kang WC, Lee SH, Yoon JH, Hong BK, Kwon HM, Jang Y; RESET Investigators. A new strategy for discontinuation of dual antiplatelet therapy: the RESET Trial (REal Safety and Efficacy of 3-month dual antiplatelet Therapy following Endeavor zotarolimus-eluting stent implantation). J Am Coll Cardiol. 2012 Oct 9;60(15):1340-8.
4. Valgimigli M1, Campo G, Monti M, Vranckx P, Percoco G, Tumscitz C, Castriota F, Colombo F, Tebaldi M, Fucà G, Kubbajeh M, Cangiano E, Minarelli M, Scalone A, Cavazza C, Frangione A, Borghesi M, Marchesini J, Parrinello G, Ferrari R; Prolonging Dual Antiplatelet Treatment After Grading Stent-Induced Intimal Hyperplasia Study (PRODIGY) Investigators. Short- versus long-term duration of dual-antiplatelet therapy after coronary stenting: a randomized multicenter trial. Circulation. 2012 Apr 24;125(16):2015-26.
5. Feres F1, Costa RA1, Abizaid A1, Leon MB2, Marin-Neto JA3, Botelho RV4, King SB 3rd5, Negoita M6, Liu M6, de Paula JE7, Mangione JA8, Meireles GX9, Castello HJ Jr10, Nicolela EL Jr11, Perin MA12, Devito FS13, Labrunie A14, Salvadori D Jr8, Gusmão M15, Staico R1, Costa JR Jr1, de Castro JP16, Abizaid AS16, Bhatt DL17; OPTIMIZE Trial Investigators. Three vs twelve months of dual antiplatelet therapy after zotarolimus-eluting stents: the OPTIMIZE randomized trial. JAMA. 2013 Dec 18;310(23):2510-22.
6. Schulz-Schüpke S1, Byrne RA2, Ten Berg JM3, Neumann FJ4, Han Y5, Adriaenssens T6, Tölg R7, Seyfarth M8, Maeng M9, Zrenner B10, Jacobshagen C11, Mudra H12, von Hodenberg E13, Wöhrle J14, Angiolillo DJ15, von Merzljak B2, Rifatov N2, Kufner S2, Morath T2, Feuchtenberger A2, Ibrahim T16, Janssen PW3, Valina C4, Li Y5, Desmet W6, Abdel-Wahab M7, Tiroch K8, Hengstenberg C17, Bernlochner I16, Fischer M18, Schunkert H17, Laugwitz KL19, Schömig A2, Mehilli J20, Kastrati A17; Intracoronary Stenting and Antithrombotic Regimen: Safety And EFficacy of 6 Months Dual Antiplatelet Therapy After Drug-Eluting Stenting (ISAR-SAFE) Trial Investigators. ISAR-SAFE: a randomized, double-blind, placebo-controlled trial of 6 vs. 12 months of clopidogrel therapy after drug-eluting stenting. Eur Heart J. 2015 May 21;36(20):1252-63.
7. Gilard M1, Barragan P2, Noryani AAL3, Noor HA4, Majwal T5, Hovasse T6, Castellant P7, Schneeberger M8, Maillard L9, Bressolette E10, Wojcik J11, Delarche N12, Blanchard D13, Jouve B14, Ormezzano O15, Paganelli F16, Levy G17, Sainsous J18, Carrie D19, Furber A20, Berland J21, Darremont O22, Le Breton H23, Lyuycx-Bore A24, Gommeaux A25, Cassat C26, Kermarrec A27, Cazaux P28, Druelles P29, Dauphin R30, Armengaud J31, Dupouy P32, Champagnac D33, Ohlmann P34, Endresen K35, Benamer H36, Kiss RG37, Ungi I38, Boschat J7, Morice MC6. 6- versus 24-month dual antiplatelet therapy after implantation of drug-eluting stents in patients nonresistant to aspirin: the randomized, multicenter ITALIC trial. J Am Coll Cardiol. 2015 Mar 3;65(8):777-786.
8. Kedhi E1, Fabris E2,3, van der Ent M4, Buszman P5,6, von Birgelen C7,8, Roolvink V2, Zurakowski A9, Schotborgh CE10, Hoorntje JCA11, Eek CH12, Cook S13, Togni M13, Meuwissen M14, van Royen N15, van Vliet R4, Wedel H16, Delewi R17, Zijlstra F7. Six months versus 12 months dual antiplatelet therapy after drug-eluting stent implantation in ST-elevation myocardial infarction (DAPT-STEMI): randomised, multicentre, non-inferiority trial. BMJ. 2018 Oct 2;363:k3793.
9. Hahn JY1, Song YB1, Oh JH2, Cho DK3, Lee JB4, Doh JH5, Kim SH6, Jeong JO7, Bae JH8, Kim BO9, Cho JH10, Suh IW11, Kim DI12, Park HK13, Park JS14, Choi WG15, Lee WS16, Kim J1, Choi KH1, Park TK1, Lee JM1, Yang JH1, Choi JH1, Choi SH1, Gwon HC17; SMART-DATE investigators. 6-month versus 12-month or longer dual antiplatelet therapy after percutaneous coronary intervention in patients with acute coronary syndrome (SMART-DATE): a randomised, open-label, non-inferiority trial. Lancet. 2018 Mar 31;391(10127):1274-1284.
10. Misumida N1, Abo-Aly M1, Kim SM1, Ogunbayo GO1, Abdel-Latif A1, Ziada KM1. Efficacy and safety of short-term dual antiplatelet therapy (≤6 months) after percutaneous coronary intervention for acute coronary syndrome: A systematic review and meta-analysis of randomized controlled trials. Clin Cardiol. 2018 Nov;41(11):1455-1462.
11. Yin SH1,2, Xu P2, Wang B2, Lu Y1, Wu QY1, Zhou ML1,2, Wu JR1,2, Cai JJ1,3, Sun X4, Yuan H5,3. Duration of dual antiplatelet therapy after percutaneous coronary intervention with drug-eluting stent: systematic review and network meta-analysis. BMJ. 2019 Jun 28;365:l2222.
12. Basaraba JE1, Barry AR2. Short- versus standard-term dual antiplatelet therapy after percutaneous coronary intervention with drug-eluting stent implantation: A meta-analysis. J Cardiol. 2017 Jan;69(1):353-358.
13. Savarese G1, Savonitto S2, Lund LH3, Paolillo S4, Marciano C5, Dellegrottaglie S6, Parente A7, Trimarco B7, Luscher TF8, Perrone-Filardi P9. Efficacy and safety of prolonged dual antiplatelet therapy: a meta-analysis of 15 randomized trials enrolling 85 265 patients. Eur Heart J Cardiovasc Pharmacother. 2016 Oct;2(4):218-28.
14. Sharma A1,2, Agrawal S3, Garg A4, Vallakati A5, Lavie CJ6, Helft G7,8. Duration of dual antiplatelet therapy following drug-eluting stent implantation: A systemic review and meta-analysis of randomized controlled trials with longer follow up. Catheter Cardiovasc Interv. 2017 Jul;90(1):31-37.
15. Bavishi C1, Trivedi V2, Singh M2, Katz E3, Messerli FH4, Bangalore S5. Duration of Dual Antiplatelet Therapy in Patients with an Acute Coronary Syndrome Undergoing Percutaneous Coronary Intervention. Am J Med. 2017 Nov;130(11):1325.e1-1325.e12.
16. Palmerini T1, Della Riva D1, Benedetto U2, Bacchi Reggiani L1, Feres F3, Abizaid A3, Gilard M4, Morice MC5, Valgimigli M6, Hong MK7, Kim BK7, Jang Y7, Kim HS8, Park KW8, Colombo A9, Chieffo A9, Sangiorgi D1, Biondi-Zoccai G10, Généreux P11, Angelini GD2, Pufulete M2, White J11, Bhatt DL12, Stone GW11. Three, six, or twelve months of dual antiplatelet therapy after DES implantation in patients with or without acute coronary syndromes: an individual patient data pairwise and network meta-analysis of six randomized trials and 11 473 patients. Eur Heart J. 2017 Apr 7;38(14):1034-1043.
17. Navarese EP1, Andreotti F2, Schulze V3, Kołodziejczak M4, Buffon A5, Brouwer M6, Costa F7, Kowalewski M8, Parati G9, Lip GY10, Kelm M3, Valgimigli M7. Optimal duration of dual antiplatelet therapy after percutaneous coronary intervention with drug eluting stents: meta-analysis of randomised controlled trials. BMJ. 2015 Apr 16;350:h1618.
18. Palmerini T1, Bacchi Reggiani L1, Della Riva D1, Romanello M1, Feres F2, Abizaid A2, Gilard M3, Morice MC4, Valgimigli M5, Hong MK6, Kim BK6, Jang Y6, Kim HS7, Park KW7, Colombo A8, Chieffo A8, Ahn JM9, Park SJ9, Schüpke S10, Kastrati A10, Montalescot G11, Steg PG12, Diallo A13, Vicaut E13, Helft G14, Biondi-Zoccai G15, Xu B16, Han Y17, Genereux P18, Bhatt DL19, Stone GW20. Bleeding-Related Deaths in Relation to the Duration of Dual-Antiplatelet Therapy After Coronary Stenting. J Am Coll Cardiol. 2017 Apr 25;69(16):2011-2022.
19. Urban P, Mehran R, Colleran R, Angiolillo DJ, Byrne RA, Capodanno D, Cuisset T, Cutlip D, Eerdmans P, Eikelboom J, Farb A, Gibson CM, Gregson J, Haude M, James SK, Kim HS, Kimura T, Konishi A, Laschinger J, Leon MB, Magee PFA, Mitsutake Y, Mylotte D, Pocock S, Price MJ, Rao SV, Spitzer E, Stockbridge N, Valgimigli M, Varenne O, Windhoevel U, Yeh RW, Krucoff MW, Morice MC. efining High Bleeding Risk in Patients Undergoing Percutaneous Coronary Intervention. Circulation. 2019 Jul 16;140(3):240-261.
20. [Capodanno D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Capodanno%20D%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)1, [Mehran R](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mehran%20R%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)2, [Valgimigli M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Valgimigli%20M%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)3, [Baber U](https://www.ncbi.nlm.nih.gov/pubmed/?term=Baber%20U%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)2, [Windecker S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Windecker%20S%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)3, [Vranckx P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Vranckx%20P%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)4, [Dangas G](https://www.ncbi.nlm.nih.gov/pubmed/?term=Dangas%20G%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)2, [Rollini F](https://www.ncbi.nlm.nih.gov/pubmed/?term=Rollini%20F%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)5, [Kimura T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kimura%20T%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)6, [Collet JP](https://www.ncbi.nlm.nih.gov/pubmed/?term=Collet%20JP%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)7, [Gibson CM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gibson%20CM%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)8, [Steg PG](https://www.ncbi.nlm.nih.gov/pubmed/?term=Steg%20PG%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)9, [Lopes RD](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lopes%20RD%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)10, [Gwon HC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gwon%20HC%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)11, [Storey RF](https://www.ncbi.nlm.nih.gov/pubmed/?term=Storey%20RF%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)12, [Franchi F](https://www.ncbi.nlm.nih.gov/pubmed/?term=Franchi%20F%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)5, [Bhatt DL](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bhatt%20DL%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)13, [Serruys PW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Serruys%20PW%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)14, [Angiolillo DJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Angiolillo%20DJ%5BAuthor%5D&cauthor=true&cauthor_uid=29973709)15. Aspirin-free strategies in cardiovascular disease and cardioembolic stroke prevention. [Nat Rev Cardiol.](https://www.ncbi.nlm.nih.gov/pubmed/29973709) 2018 Aug;15(8):480-496.
21. Vranckx P1, Valgimigli M, Windecker S, Steg PG, Hamm C, Jüni P, Garcia-Garcia HM, van Es GA, Serruys PW. Long-term ticagrelor monotherapy versus standard dual antiplatelet therapy followed by aspirin monotherapy in patients undergoing biolimus-eluting stent implantation: rationale and design of the GLOBAL LEADERS trial. EuroIntervention. 2016 Nov 20;12(10):1239-1245.
22. Baber U1, Dangas G1, Cohen DJ2, Gibson CM3, Mehta SR4, Angiolillo DJ5, Pocock SJ6, Krucoff MW7, Kastrati A8, Ohman EM7, Steg PG9, Badimon J1, Zafar MU1, Chandrasekhar J1, Sartori S1, Aquino M1, Mehran R10. Ticagrelor with aspirin or alone in high-risk patients after coronary intervention: Rationale and design of the TWILIGHT study. Am Heart J. 2016 Dec;182:125-134.
23. Song YB1, Oh SK2, Oh JH3, Im ES4, Cho DK5, Cho BR6, Lee JY7, Lee JM1, Park TK1, Yang JH1, Choi JH1, Choi SH1, Lee SH1, Gwon HC8, Hahn JY9. Rationale and design of the comparison between a P2Y12 inhibitor monotherapy versus dual antiplatelet therapy in patients undergoing implantation of coronary drug-eluting stents (SMART-CHOICE): A prospective multicenter randomized trial. Am Heart J. 2018 Mar;197:77-84.
24. [Paul C.J. Armstrong](https://www.ncbi.nlm.nih.gov/pubmed/?term=Armstrong%20PC%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),\*,1 [Philip D. Leadbeater](https://www.ncbi.nlm.nih.gov/pubmed/?term=Leadbeater%20PD%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),†,1 [Melissa V. Chan](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chan%20MV%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),\* [Nicholas S. Kirkby](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kirkby%20NS%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),† [Joseph A. Jakubowski](https://www.ncbi.nlm.nih.gov/pubmed/?term=Jakubowski%20JA%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),‡ [Jane A. Mitchell](https://www.ncbi.nlm.nih.gov/pubmed/?term=Mitchell%20JA%5BAuthor%5D&cauthor=true&cauthor_uid=21143373),† and [Timothy D. Warner](https://www.ncbi.nlm.nih.gov/pubmed/?term=Warner%20TD%5BAuthor%5D&cauthor=true&cauthor_uid=21143373)\* In the presence of strong P2Y12 receptor blockade, aspirin provides little additional inhibition of platelet aggregation. [J Thromb Haemost. 2011 Mar; 9(3): 552–561.](https://www.ncbi.nlm.nih.gov/entrez/eutils/elink.fcgi?dbfrom=pubmed&retmode=ref&cmd=prlinks&id=21143373)
25. [Traby L](https://www.ncbi.nlm.nih.gov/pubmed/?term=Traby%20L%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)1, [Kollars M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kollars%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)1, [Kaider A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kaider%20A%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)2, [Eichinger S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Eichinger%20S%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)1, [Wolzt M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Wolzt%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)3, [Kyrle PA](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kyrle%20PA%5BAuthor%5D&cauthor=true&cauthor_uid=26663880)1. Effects of P2Y12 receptor inhibition with or without aspirin on hemostatic system activation: a randomized trial in healthy subjects. [J Thromb Haemost.](https://www.ncbi.nlm.nih.gov/pubmed/26663880) 2016 Feb;14(2):273-81.
26. [CAPRIE SteeringCommittee](https://www.ncbi.nlm.nih.gov/pubmed/?term=CAPRIE%20Steering%20Committee%5BCorporate%20Author%5D). A randomised, blinded, trial of clopidogrel versus aspirin in patients at risk of ischaemic events (CAPRIE). CAPRIE Steering Committee. [Lancet.](https://www.ncbi.nlm.nih.gov/pubmed/?term=A+randomised%2C+blinded%2C+trial+of+clopidogrel+versus+aspirin+in+patients+at+risk+of+ischaemic+events+(CAPRIE)) 1996 Nov 16;348(9038):1329-39.
27. [Park TK](https://www.ncbi.nlm.nih.gov/pubmed/?term=Park%20TK%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Song YB](https://www.ncbi.nlm.nih.gov/pubmed/?term=Song%20YB%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)2, [Ahn J](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ahn%20J%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Carriere KC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Carriere%20KC%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Hahn JY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hahn%20JY%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Yang JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yang%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Choi SH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20SH%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Choi JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Lee SH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20SH%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1, [Gwon HC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gwon%20HC%5BAuthor%5D&cauthor=true&cauthor_uid=26755571)1. Clopidogrel Versus Aspirin as an Antiplatelet Monotherapy After 12-Month Dual-Antiplatelet Therapy in the Era of Drug-Eluting Stents. [Circ Cardiovasc Interv.](https://www.ncbi.nlm.nih.gov/pubmed/26755571) 2016 Jan;9(1):e002816.
28. [Vranckx P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Vranckx%20P%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)1, [Valgimigli M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Valgimigli%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)2, [Jüni P](https://www.ncbi.nlm.nih.gov/pubmed/?term=J%C3%BCni%20P%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)3, [Hamm C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hamm%20C%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)4, [Steg PG](https://www.ncbi.nlm.nih.gov/pubmed/?term=Steg%20PG%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)5, [Heg D](https://www.ncbi.nlm.nih.gov/pubmed/?term=Heg%20D%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)6, [van Es GA](https://www.ncbi.nlm.nih.gov/pubmed/?term=van%20Es%20GA%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)7, [McFadden EP](https://www.ncbi.nlm.nih.gov/pubmed/?term=McFadden%20EP%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)8, [Onuma Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Onuma%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)9, [van Meijeren C](https://www.ncbi.nlm.nih.gov/pubmed/?term=van%20Meijeren%20C%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)10, [Chichareon P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chichareon%20P%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)11, [Benit E](https://www.ncbi.nlm.nih.gov/pubmed/?term=Benit%20E%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)1, [Möllmann H](https://www.ncbi.nlm.nih.gov/pubmed/?term=M%C3%B6llmann%20H%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)4, [Janssens L](https://www.ncbi.nlm.nih.gov/pubmed/?term=Janssens%20L%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)12, [Ferrario M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ferrario%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)13, [Moschovitis A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Moschovitis%20A%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)2, [Zurakowski A](https://www.ncbi.nlm.nih.gov/pubmed/?term=Zurakowski%20A%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)14, [Dominici M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Dominici%20M%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)15, [Van Geuns RJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Van%20Geuns%20RJ%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)16, [Huber K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Huber%20K%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)17, [Slagboom T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Slagboom%20T%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)18, [Serruys PW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Serruys%20PW%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)19, [Windecker S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Windecker%20S%5BAuthor%5D&cauthor=true&cauthor_uid=30166073)20; [GLOBAL LEADERS Investigators](https://www.ncbi.nlm.nih.gov/pubmed/?term=GLOBAL%20LEADERS%20Investigators%5BCorporate%20Author%5D). Ticagrelor plus aspirin for 1 month, followed by ticagrelor monotherapy for 23 months vs aspirin plus clopidogrel or ticagrelor for 12 months, followed by aspirin monotherapy for 12 months after implantation of a drug-eluting stent: a multicentre, open-label, randomised superiority trial. [Lancet.](https://www.ncbi.nlm.nih.gov/pubmed/30166073) 2018 Sep 15;392(10151):940-949
29. [Hahn JY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hahn%20JY%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Song YB](https://www.ncbi.nlm.nih.gov/pubmed/?term=Song%20YB%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Oh JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Oh%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)2, [Chun WJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chun%20WJ%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)2, [Park YH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Park%20YH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)2, [Jang WJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Jang%20WJ%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)2, [Im ES](https://www.ncbi.nlm.nih.gov/pubmed/?term=Im%20ES%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)3, [Jeong JO](https://www.ncbi.nlm.nih.gov/pubmed/?term=Jeong%20JO%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)4, [Cho BR](https://www.ncbi.nlm.nih.gov/pubmed/?term=Cho%20BR%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)5, [Oh SK](https://www.ncbi.nlm.nih.gov/pubmed/?term=Oh%20SK%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)6, [Yun KH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yun%20KH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)6, [Cho DK](https://www.ncbi.nlm.nih.gov/pubmed/?term=Cho%20DK%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)7, [Lee JY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20JY%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)8, [Koh YY](https://www.ncbi.nlm.nih.gov/pubmed/?term=Koh%20YY%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)9, [Bae JW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Bae%20JW%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)10, [Choi JW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20JW%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)11, [Lee WS](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20WS%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)12, [Yoon HJ](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yoon%20HJ%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)13, [Lee SU](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20SU%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)14, [Cho JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Cho%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)15, [Choi WG](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20WG%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)16, [Rha SW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Rha%20SW%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)17, [Lee JM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20JM%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Park TK](https://www.ncbi.nlm.nih.gov/pubmed/?term=Park%20TK%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Yang JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yang%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Choi JH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20JH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Choi SH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Choi%20SH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Lee SH](https://www.ncbi.nlm.nih.gov/pubmed/?term=Lee%20SH%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1, [Gwon HC](https://www.ncbi.nlm.nih.gov/pubmed/?term=Gwon%20HC%5BAuthor%5D&cauthor=true&cauthor_uid=31237645)1; [SMART-CHOICE Investigators](https://www.ncbi.nlm.nih.gov/pubmed/?term=SMART-CHOICE%20Investigators%5BCorporate%20Author%5D). Effect of P2Y12 Inhibitor Monotherapy vs Dual Antiplatelet Therapy on Cardiovascular Events in Patients Undergoing Percutaneous Coronary Intervention: The SMART-CHOICE Randomized Clinical Trial. [JAMA.](https://www.ncbi.nlm.nih.gov/pubmed/31237645) 2019 Jun 25;321(24):2428-2437.
30. [Watanabe H](https://www.ncbi.nlm.nih.gov/pubmed/?term=Watanabe%20H%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)1, [Domei T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Domei%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)2, [Morimoto T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Morimoto%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)3, [Natsuaki M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Natsuaki%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)4, [Shiomi H](https://www.ncbi.nlm.nih.gov/pubmed/?term=Shiomi%20H%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)1, [Toyota T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Toyota%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)5, [Ohya M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ohya%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)6, [Suwa S](https://www.ncbi.nlm.nih.gov/pubmed/?term=Suwa%20S%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)7, [Takagi K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Takagi%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)8, [Nanasato M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Nanasato%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)9, [Hata Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hata%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)10, [Yagi M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yagi%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)11, [Suematsu N](https://www.ncbi.nlm.nih.gov/pubmed/?term=Suematsu%20N%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)12, [Yokomatsu T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Yokomatsu%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)13, [Takamisawa I](https://www.ncbi.nlm.nih.gov/pubmed/?term=Takamisawa%20I%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)14, [Doi M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Doi%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)15, [Noda T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Noda%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)16, [Okayama H](https://www.ncbi.nlm.nih.gov/pubmed/?term=Okayama%20H%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)17, [Seino Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Seino%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)18, [Tada T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Tada%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)19, [Sakamoto H](https://www.ncbi.nlm.nih.gov/pubmed/?term=Sakamoto%20H%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)19, [Hibi K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hibi%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)20, [Abe M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Abe%20M%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)21, [Kawai K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kawai%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)22, [Nakao K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Nakao%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)23, [Ando K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ando%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)2, [Tanabe K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Tanabe%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)24, [Ikari Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Ikari%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)25, [Hanaoka KI](https://www.ncbi.nlm.nih.gov/pubmed/?term=Hanaoka%20KI%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)26, [Morino Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Morino%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)27, [Kozuma K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kozuma%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)28, [Kadota K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kadota%20K%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)6, [Furukawa Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Furukawa%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)5, [Nakagawa Y](https://www.ncbi.nlm.nih.gov/pubmed/?term=Nakagawa%20Y%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)29, [Kimura T](https://www.ncbi.nlm.nih.gov/pubmed/?term=Kimura%20T%5BAuthor%5D&cauthor=true&cauthor_uid=31237644)1; [STOPDAPT-2 Investigators](https://www.ncbi.nlm.nih.gov/pubmed/?term=STOPDAPT-2%20Investigators%5BCorporate%20Author%5D). Effect of 1-Month Dual Antiplatelet Therapy Followed by Clopidogrel vs 12-Month Dual Antiplatelet Therapy on Cardiovascular and Bleeding Events in Patients Receiving PCI: The STOPDAPT-2 Randomized Clinical Trial. [JAMA.](https://www.ncbi.nlm.nih.gov/pubmed/31237644) 2019 Jun 25;321(24):2414-2427.
31. TCT: TWILIGHT STUDY.