

Online supplemental material

Definition of secondary outcomes

Major bleeding was defined according to the International Society on Thrombosis classification as overt bleeding with ≥ 2 g/dL decrease in hemoglobin level or requiring transfusion of ≥ 2 units of red blood cells/whole blood or occurring in a critical site, or contributing to death. *Patel MR, Mahaffey KW, Garg J, Pan G, Singer DE, Hacke W, Breithardt G, Halperin JL, Hankey GJ, Piccini JP, et al. Rivaroxaban versus warfarin in nonvalvular atrial fibrillation. N Engl J Med. 2011;365:883-891. doi: 10.1056/NEJMoa1009638*

Death was categorized into cardiovascular related or non-cardiovascular related. Procedure related death was defined as all-cause mortality during the index procedure, any procedure-related death within 30 days after the index procedure or during post-operative hospitalization for the index procedure (if >30 days). *Tzikas A, Holmes DR, Jr., Gafoor S, Ruiz CE, Blomstrom-Lundqvist C, Diener HC, Cappato R, Kar S, Lee RJ, Byrne RA, et al. Percutaneous left atrial appendage occlusion: the Munich consensus document on definitions, endpoints, and data collection requirements for clinical studies. Europace. 2017;19:4-15. doi: 10.1093/europace/euw141*

Supplementary Table 1. Published data on baseline characteristics and outcomes in patients who had left atrial appendage closure after ICH

Author, year, <i>Journal</i>	Study design	Num. of pts	Classification to ICH major subtype	Age	CHA ₂ DS ₂ -VASc	HAS-BLED	Follow-up period (mean, months)	Recurrent AIS risk per 100 patient-years	Recurrent ICH risk per 100 patient-years
Abramovitz-Fouks, 2023 (Current dataset)	Retrospective, observational (2015-2021)	146	58 IPH, 40 T-ICH, 18 Non-traumatic SDH, 4 SAH, 24 CMB-group	75.6±7.6	5.2±1.5	3.6±1.0	25.4	1.94	1.94
Gilhofer, 2023, <i>Canadian Journal of Cardiology</i>	Retrospective, observational (2010-2022)	138	57 SDH, 16 SAH, 64 IPH, 17 CAA	76.1±8.5	4.4±1.5	3.7±0.9	14.7	1.4	1.5
Schrag, 2021, <i>Translational Stroke Research</i>	Observational, severe CAA cohort with or without ICH (2016-2020)	26	13 with ICH, 13 without ICH	73.0±8.5	4.6±1.5	3.8±1.0	25	1.8	1.8
Casu, 2020, <i>International Journal of Cardiology</i>	Retrospective, observational (2014-2019)	120	90 IPH, 20 SDH, 10 SAH	74±8.6	4.5±1.5	3.5±1.1	16.1	1.8	3.63

Ajmal, 2020, <i>Journal of Stroke and Cerebrovascular Diseases</i>	Retrospective, observational (3 years period)	16	7 IPH,7 SDH, 2 SAH	73 (67-78)	4 (3-6)	N/A	11.2	7	N/A
Pouru, 2020, <i>Heart rythm</i>	Prospective registry (2009-2018)	104	69 IPH ,21 SDH, 11 SAH	73 ± 7	4.7 ± 1.4	3.3 ± 0.9	43.2	2.1	1.8
Boersma, 2019, <i>Circulation: Arrhythmia and Electrophysiology</i>	Prospective EWOLUTION registry	153	N/A	91% >65	5.4±1.2	2.8±0.9	24	1.8	1.8
Hucker, 2019, <i>Journal of Interventional Cardiac Electrophysiology</i>	Retrospective, observational (2015-2018)	63	36 IPH, 18 SDH, 6 SAH	75.3 ± 6.0	4.9 ± 1.7	3.5 ± 1.1	6	0	0
Hutt, 2019, <i>Heart Rythm</i>	Prospective registry (2015-2018)	38	23 IPH, 9 SDH, 6 SAH	73 ± 7	5.0 ± 1.3	4.2 ± 1.0	13.4 months	0	0
Nielsen-Kudsk, 2017, <i>Eurointervention</i>	Retrospective, observational (2009-2015)	151	N/A	71.9 ± 8.7	3.9 ± 1.5	4.2 ± 0.8	6.1	1.73	0.86

Tzikas, 2017, <i>International Journal of Cardiology</i>	Prospective Amplatzar cardiac registry (2008-2013)	198	N/A	73.7 ± 8.4	4.5±1.5	3.5 ± 1.1	18.4	1.4	0 (1 that sub-clinical)
Renou, 2017, <i>Journal of Stroke and Cerebrovascular Diseases</i>	Prospective, observational (2011-2015)	46	25 lobar, 18 deep hemorrhage, 3 cmb±cSS	73.7 ± 8.4	5.23±1.12	4.00 ±0.95	12.6	4.14	2.07
Fayos-Vidal, 2017, <i>Neurología</i>	Retrospective, observational (2013-2016)	9	1 lobar, 7 Deep hemorrhage, 1 SDH	72.7 ± 8.2	4 (IQR 2.5)	3	15	0	0
Cruz-Gonzalez, 2016, <i>Scientific letter / Rev Esp Cardiol</i>	Retrospective, observational (2009-2016)	47	34 ICH, 10 SDH, 2 SAH, 1 cmb	80±6	5±1	4±1	28	2.2	2.2
Fahmy, 2016, <i>Candian Journal of Cardiology</i>	Retrospective, observational (2010-2015)	26	24 ICH, 2 IOH	76±7.0	4.9 ± 1.7	N/A	11.9	0	0
Hortsmann, 2014, <i>Neurology</i>	Prospective, observational (2010-2022)	20	15 ICH, 4 SDH, 1 SAH	72.5±5.8	4.5±1.4	4.7 ±. 1.0	13.6	0	0

Some of these studies were summarized in a review article from year 2020.(32) ICH, intracerebral hemorrhage; AIS, acute ischemic stroke; IPH, intraparenchymal hemorrhage; T-ICH, traumatic ICH; SDH, sub-dural hemorrhage; SAH, subarachnoid hemorrhage; cmb, cerebral microbleed; CAA, cerebral amyloid angiopathy; cSS, cortical superficial siderosis; IOH, intraocular hemorrhage