

Aspirin and Hemocompatibility After LVAD Implantation in Patients With Atherosclerotic Vascular Disease

A Secondary Analysis From the ARIES-HM3 Randomized Clinical Trial

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IMPORTANCE The Aspirin and Hemocompatibility Events With a Left Ventricular Assist Device in Advanced Heart Failure (ARIES-HM3) study demonstrated that aspirin may be safely eliminated from the antithrombotic regimen after HeartMate 3 (HM3 [Abbott Cardiovascular]) left ventricular assist device (LVAD) implantation. This prespecified analysis explored whether conditions requiring aspirin (prior percutaneous coronary intervention [PCI], coronary artery bypass grafting [CABG], stroke, or peripheral vascular disease [PVD]) would influence outcomes differentially with aspirin avoidance.

OBJECTIVE To analyze aspirin avoidance on hemocompatibility-related adverse events (HRAEs) at 1 year after implant in patients with a history of CABG, PCI, stroke, or PVD.

DESIGN, SETTING, AND PARTICIPANTS This was an international, multicenter, prospective, double-blind, placebo-controlled, randomized clinical trial including patients implanted with a de novo HM3 LVAD across 51 centers. Data analysis was conducted from April to July 2024.

INTERVENTIONS Patients were randomized in a 1:1 ratio to receive aspirin (100 mg per day) or placebo, in addition to a vitamin K antagonist (VKA) targeted to an international normalized ratio of 2 to 3 in both groups.

MAIN OUTCOMES AND MEASURES Primary end point (assessed for noninferiority) was a composite of survival free of any nonsurgical (>14 days after implant) HRAEs including stroke, pump thrombosis, bleeding, and arterial peripheral thromboembolism at 12 months. Secondary end points included nonsurgical bleeding, stroke, and pump thrombosis events.

RESULTS Among 589 of 628 patients (mean [SD] age, 57.1 [13.7] years; 456 male [77.4%]) who contributed to the primary end point analysis, a history of PCI, CABG, stroke, or PVD was present in 41% (240 of 589 patients). There was no interaction between the presence of an atherosclerotic vascular condition and effect of aspirin compared with placebo (P for interaction = .23). The preset 10% noninferiority margin was not crossed for the studied subgroup of patients. Thrombotic events were rare, with no differences between aspirin and placebo in patients with and without vascular disease (P for interaction = .77). Aspirin treatment was associated with a higher rate of nonsurgical major bleeding events in the group with prior vascular condition history compared with those without aspirin (rate ratio for placebo compared with aspirin, 0.52; 95% CI, 0.35-0.79).

CONCLUSIONS AND RELEVANCE Results of this prespecified analysis of the ARIES-HM3 randomized clinical trial demonstrate that in patients with advanced heart failure who have classical indications for antiplatelet therapy use at the time of LVAD implantation, aspirin avoidance was safe and not associated with increased thrombosis risk. Importantly, elimination of aspirin was associated with no increased thrombosis but a reduction in nonsurgical bleeding events in patients with a history of PCI, CABG, stroke, or PVD.

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For decades, aspirin (acetylsalicylic acid) has been recommended for secondary prevention in various acute and chronic cardiovascular conditions, such as acute and chronic coronary syndromes, cerebral vascular disease, and peripheral vascular disease (PVD).¹⁻⁶ In patients with heart failure (HF), these atherosclerotic comorbidities are common, with approximately 50% receiving aspirin according to recent registries.⁷⁻⁹

In advanced HF, durable left ventricular assist devices (LVADs) are indicated to enhance survival, physical capacity, and quality of life, serving as a bridge to transplant or as life-long therapy.^{10,11} The Heartmate 3 (HM3 [Abbott Cardiovascular]) LVAD, a durable fully magnetically levitated pump, has shown superior outcomes compared with legacy devices, with a median survival exceeding 5 years after implantation.¹²⁻¹⁵ To prevent thrombotic complications related to the pump and out-flow graft, antithrombotic prophylaxis is mandatory. Currently, the recommended regimen for the HM3 LVAD includes a vitamin K antagonist (VKA) with a target international normalized ratio (INR) of 2 to 3 combined with low-dose aspirin (75-325 mg daily). Despite reducing the risk of pump thrombosis to less than 1%, along with a marked reduction in stroke rates, this regimen is associated with a high incidence of bleeding complications, partly due to the pump's impact on blood components, such as acquired von Willebrand syndrome.^{16,17} Therefore, identifying the optimal antithrombotic regimen to minimize hemocompatibility-related adverse events (HRAEs) remains uncertain, particularly in those patients with preexisting arterial vascular disease.

The recent Aspirin and Hemocompatibility Events With a Left Ventricular Assist Device in Advanced Heart Failure (ARIES-HM3) randomized clinical trial suggested that aspirin can be safely omitted after HM3 LVAD implantation.¹⁸ It found that eliminating aspirin and using VKA alone was safe and resulted in fewer nonsurgical bleeding events compared with the standard VKA plus aspirin regimen. In this prespecified secondary trial-level analysis, we explored whether common conditions requiring aspirin (ie, prior percutaneous coronary intervention [PCI], coronary artery bypass grafting [CABG], stroke, or PVD) in recipients of the HM3 LVAD would influence outcomes differentially when aspirin was eliminated.¹⁸

Methods

The ARIES study was a randomized clinical trial conducted in 51 countries in North America, Europe, Kazakhstan, and Australia comparing placebo or aspirin in addition to VKA therapy (target INR, 2.0-3.0) in patients with advanced HF undergoing implantation with the HM3 LVAD. Details of the trial rationale, design, and primary results have been previously published (Supplement 1).^{18,19} Patients not requiring mechanical circulatory support after implantation other than the HM3 LVAD and who were able to take oral aspirin (100 mg) or placebo 7 days after LVAD implantation were eligible for randomization. Patients self-identified with the following races and ethnicities: Asian, Black or African American, Native Hawaiian or Other Pacific Islander, White, other (which included His-

Key Points

Question Do common conditions (prior percutaneous coronary intervention [PCI], coronary artery bypass grafting [CABG], stroke, or peripheral vascular disease [PVD]) for which aspirin is indicated influence outcomes differentially when aspirin is eliminated from the antithrombotic regimen in recipients of the Heartmate 3 (HM3 [Abbott Cardiovascular]) left ventricular assist device (LVAD)?

Findings In this prespecified analysis of the Aspirin and Hemocompatibility Events With a Left Ventricular Assist Device in Advanced Heart Failure (ARIES-HM3) randomized clinical trial, the presence of an atherosclerotic vascular condition did not modify the observed benefit of aspirin avoidance on the primary outcome (survival free of any nonsurgical hemocompatibility-related adverse events, including stroke, pump thrombosis, bleeding, and arterial peripheral thromboembolism at 12 months) or secondary outcome of reduction in nonsurgical bleeding.

Meaning Prior PCI, stroke, PVD, or CABG should not compel physicians to use aspirin as part of the antithrombotic regimen with the HM3 LVAD.

panic/Latino, Levantine, or multiethnic), or refused to provide. Patients provided written informed consent, and the study was approved by national or regional ethics committees. Events were reviewed by a clinical events committee, which adjudicated all primary end points and adverse events related to the primary or secondary outcomes. In this comprehensive secondary outcome analysis, patients were grouped into those with and without a medical history of arterial vascular disease classically associated with a long-term indication for antiplatelet therapy with aspirin (prior PCI, CABG, stroke, or PVD). This study followed the Consolidated Standards of Reporting Trials (CONSORT) reporting guidelines.

Primary End Point

The primary end point consisted of a composite of survival free of nonsurgical major HRAEs (ie, stroke, pump thrombosis, major nonsurgical bleeding, and arterial peripheral thromboembolism) at 12 months. Patients with end points occurring within 14 days after LVAD implantation were excluded from the primary end point analysis (to avoid counting surgical complications not attributed to the treatment) (eAppendix in Supplement 2). Major nonsurgical bleeding included both moderate and severe bleeding events if occurring more than 14 days after LVAD implantation.²⁰

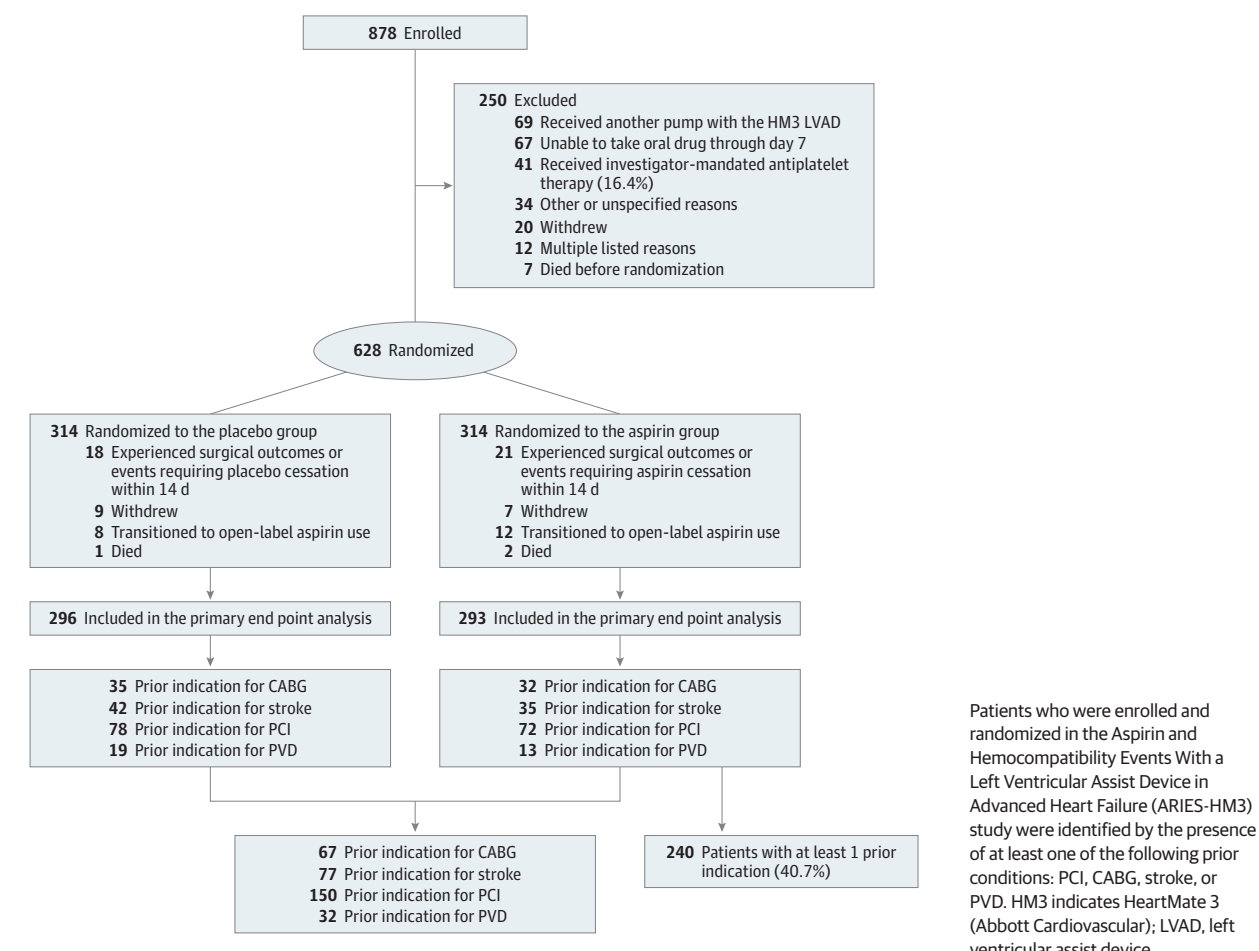
Main Secondary and Safety End Points

The principal secondary end point was moderate and severe nonsurgical bleeding assessed as first and recurrent events. This end point was described in events per 100 patient-years. Survival, stroke, and pump thrombosis rates were compared between the 2 study groups among those with and without aspirin (placebo) to assess the safety of omitting aspirin in the distinct subgroups of interest.

Statistical Analysis

Categorical variables are presented as numbers and proportions. Continuous variables are presented as mean (SD) or median (IQR) as appropriate. Between-group comparisons were

Figure 1. Flow Diagram of the Study Detailing Patients With and Without a History of Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Stroke, or Peripheral Vascular Disease (PVD)



evaluated using Fisher exact test and Wilcoxon rank sum test, respectively. Patients who withdrew from the study without experiencing a prior primary end point event were not included in the primary end point set. Transplant, explant of the LVAD due to recovery, or transition to open-label aspirin use (based on investigator preference) without nonsurgical major HRAEs was considered treatment success. Interaction testing of the primary end point subgroups was performed by generalized linear modeling with terms for treatment group, subgroup, and their interaction evaluated at an interaction significance level of .15. Time to first event comparing treatment groups at 24 months by the Kaplan-Meier method was done to evaluate events over longer follow-up duration. Events in the aspirin and placebo groups, and the groups with and without prior indication for aspirin, were compared as rate of events per 100 patient-years and tested using Poisson regression. Plots of mean cumulative hazard rates were constructed using Nelson-Aalen estimator over 24 months for secondary end points. *P* values were 2-tailed, and *P* values <.05 were considered significant unless otherwise noted. Data analysis was conducted from April to July 2024 and performed using SAS software, version 9.4 (SAS Institute).

Results

Baseline Characteristics

The ARIES HM3 trial enrolled 878 patients of whom 628 underwent randomization in the study. A minority of exclusions were explained by the investigators' perception of requirement for open-label aspirin (41 patients [16%] of all excluded patients) (Figure 1). Of the 628 randomized patients, 39 were not included in the primary end point analysis mainly because of surgical events within 14 days after implantation mandating cessation of study drug, leaving 589 patients (mean [SD] age, 57.1 [13.7] years; 133 female [22.6%]; 456 male [77.4%]) in the primary end point population. Patients self-identified with the following races and ethnicities: 22 Asian (3.7%), 177 Black or African American (30.1%), 5 Native Hawaiian or Other Pacific Islander (0.8%), 360 White (61.1%), 6 other (1.0%), and 19 refused to provide (3.2%). A history of PCI, CABG, stroke, or PVD was noted in 240 individuals (41% of the primary end point population), with prior PCI being the most common condition (Figure 1). The baseline characteristics and medical history of patients in the individual components of

Table. Baseline Characteristics Stratified by a History of Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Stroke, or Peripheral Vascular Disease (PVD)

Characteristics	No. (%)		P value
	History of PCI, CABG, stroke, or PVD (n = 240)	No history of PCI, CABG, stroke, or PVD (n = 349)	
Age, mean (SD), y	61.7 (10.8)	53.9 (14.5)	<.001
Sex			
Female	50 (20.8)	83 (23.8)	.42
Male	190 (79.2)	266 (76.2)	.42
Race			
Asian	2 (0.8)	20 (5.7)	.001
Black or African American	63 (26.3)	114 (32.7)	.10
Native Hawaiian or Other Pacific Islander	3 (1.3)	2 (0.6)	.40
White	163 (67.9)	197 (56.4)	.006
Other ^a	2 (0.8)	4 (1.1)	>.99
Refused to provide	7 (2.9)	12 (3.4)	.81
Diabetes	112 (46.7)	128 (36.7)	.01
Prior sternotomy	69 (28.8)	18 (5.2)	<.001
INTERMACS 1-3	169 (70.4)	278 (79.7)	.011
History of bleeding	18 (7.5)	11 (3.2)	.02
Atrial fibrillation	118 (49.2)	141 (40.4)	.04
TTR in study, mean (SD) [No.], %	54.2 (23.4) [227] ^b	54.9 (21.6) [327] ^b	.86

Abbreviations: INTERMACS, Mechanically Assisted Circulatory Support; TTR, time in therapeutic range.

^a Other race/ethnicity included Hispanic/Latino, Levantine, and multiethnic.

^b In instances where data may be missing for some subset of patients, total numbers are provided as [No.] to describe the population where the specific data point is available.

the subgroups are shown in eTables 1 and 2 in [Supplement 2](#), with a further breakdown depending on randomization results in eTables 3 and 4 in [Supplement 2](#). Prior events were mostly distant to the LVAD implantation procedure. For instance, 32 patients had undergone PCI within the last year before LVAD implantation (21% of 150 patients in total with prior PCI) and only 19 within 6 months of the LVAD procedure.

Baseline characteristics of patients with and without history of PCI, CABG, stroke, or PVD are presented in the [Table](#), and baseline laboratory tests and hemodynamic parameters are reported in eTables 5 and 6 in [Supplement 2](#), respectively. Cases of multiple aspirin indications are reported in eTable 7 in [Supplement 2](#), and eTable 8 in [Supplement 2](#) reports the use of P2Y12 agents before the LVAD implant and discontinued at the time of inclusion into the trial. Patients with a history of any of the vascular comorbidities were older, more commonly White race, more often had diabetes and had undergone sternotomy, and less often had an Interagency Registry for Mechanically Assisted Circulatory Support, or INTERMACS, grade of 1 to 3 (ie, more severely advanced HF being at least inotrope dependent) compared with patients without such a history. Moreover, patients with a history of systemic vascular disease (as defined by the four groups) more often had atrial fibrillation and a history of bleeding. Importantly, time in therapeutic range (TTR) for the VKA treatment (INR, 2-3) throughout the study was similar in the 2 groups at a mean (SD) of 54.2% (23.4%) and 54.9% (21.6%; $P = .86$) ([Table](#)). The allocation to aspirin and placebo was well balanced in both subgroups.

Effect of Aspirin on Primary and Secondary End Points

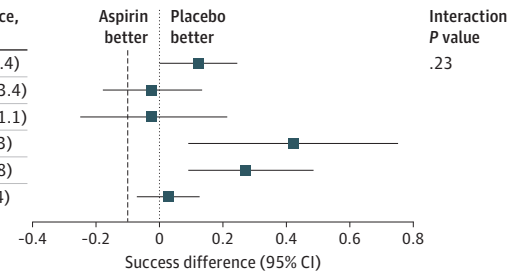
With respect to the primary end point, there was no interaction between presence of any of the arterial vascular condi-

tions and effect of aspirin compared with placebo (P for interaction = .23) ([Figure 2](#)). The lower boundary of the 1-sided 97.5% confidence limit of the difference in the composite success rate between treatment groups (placebo – aspirin) was greater than the noninferiority margin (–10%) by the Farrington-Manning test at 12 months in the primary analysis population, and this, too, was not crossed for the subgroup of patients with a history of PCI, CABG, stroke, or PVD. None of the 4 components of the atherosclerotic vascular disease subgroup appear to deviate from the overall analysis with respect to the safety of aspirin avoidance, but power of the analysis in the individual subcategories is limited. Thrombotic events during follow-up were rare in both groups and there was no indication of a difference between aspirin and placebo in either (P interaction 0.77) ([Figure 2](#)).

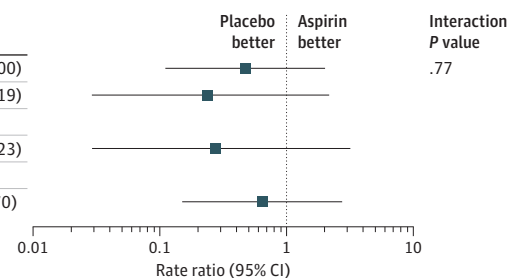
The overall cumulative incidence of nonsurgical major bleeding events was higher in the group with a history of PCI, CABG, stroke, or PVD compared with the subgroup without a history of arterial vascular disease ([Figure 3](#)). However, the increased rate of bleeding events in the group with a history of vascular disease was due to randomization to aspirin (rate ratio [RR] for placebo compared with aspirin, 0.52; 95% CI, 0.35–0.79), whereas the difference in bleeding between aspirin and placebo was attenuated for patients without a history of PCI, CABG, stroke, or PVD (RR, 0.76; 95% CI, 0.54–1.06). The individual groups of patients with a recent PCI, CABG, stroke, or PVD within 6 months were too small to allow for meaningful statistical analyses and therefore not analyzed. The proportion of patients reporting indication within 12 months from HM3 implant is reported in eTable 9 in [Supplement 2](#). The survival free from death and nonsurgical HRAE analysis reported a significant reduction in hazard ratio (HR) at 24 months between aspirin and placebo for patients with prior indica-

Figure 2. Incidence of the Primary End Point and Thrombotic Events in Patients With and Without a History of Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Stroke, or Peripheral Vascular Disease (PVD) Assigned to Aspirin or Placebo**A** Any arterial vascular conditions and effect of aspirin vs placebo

Indication	No./total No. (%)		Success difference, % (95% CI)
	Placebo (n = 296)	Aspirin (n = 293)	
Prior indication for aspirin	89/121 (73.6)	62/101 (61.4)	12.2 (-0.1 to 24.4)
PCI	46/71 (64.8)	45/67 (67.2)	-2.4 (-18.1 to 13.4)
CABG	21/32 (65.6)	21/31 (67.7)	-2.1 (-25.3 to 21.1)
PVD	15/17 (88.2)	6/13 (46.2)	42.1 (8.9 to 75.3)
Stroke	32/39 (82.1)	17/31 (54.8)	27.2 (5.6 to 48.8)
No prior indication for aspirin	112/150 (74.7)	124/172 (72.1)	2.6 (-7.2 to 12.4)

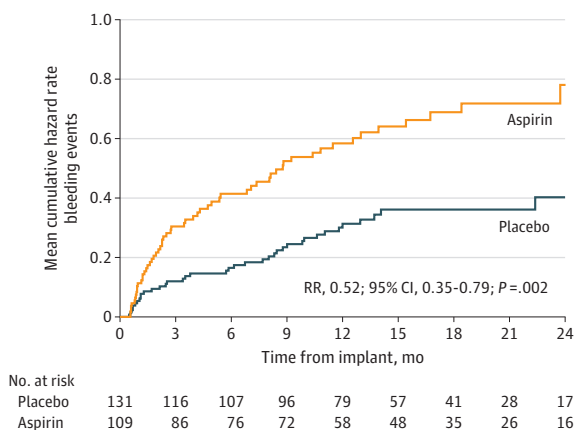
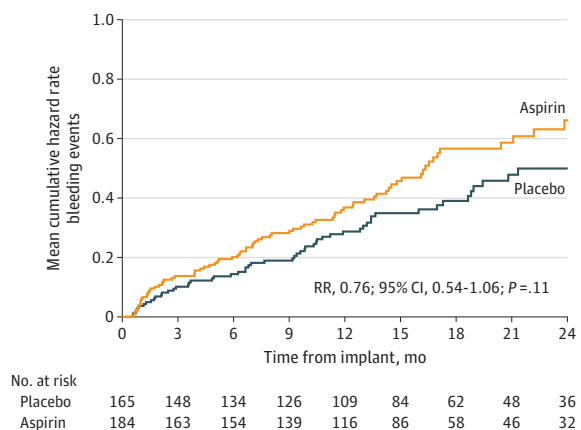
**B** Thrombotic events during follow-up

Indication	EPPY (events)		Rate ratio (95% CI)
	Placebo (n = 296)	Aspirin (n = 293)	
Prior indication for aspirin	0.020 (3)	0.041 (5)	0.48 (0.11 to 2.00)
PCI	0.012 (1)	0.049 (4)	0.25 (0.03 to 2.19)
CABG	0.031 (1)	0.000 (0)	NA
PVD	0.048 (1)	0.163 (2)	0.29 (0.03 to 3.23)
Stroke	0.000 (0)	0.087 (3)	NA
No prior indication for aspirin	0.014 (3)	0.022 (5)	0.64 (0.15 to 2.70)



A, With respect to the primary end point, there was no interaction between presence of any of the arterial vascular conditions and effect of aspirin compared with placebo (P for interaction = .23). The vertical dashed line indicates the noninferiority margin. B, Thrombotic events during follow-up were rare in both groups, and there was no indication of a difference between aspirin

and placebo (P for interaction = .77). The primary end point was the survival free of hemocompatibility-related adverse events: stroke, pump thrombosis, major nonsurgical bleeding, and arterial peripheral thromboembolism. This excluded patients who were withdrawn from study drug treatment before experiencing primary end point.

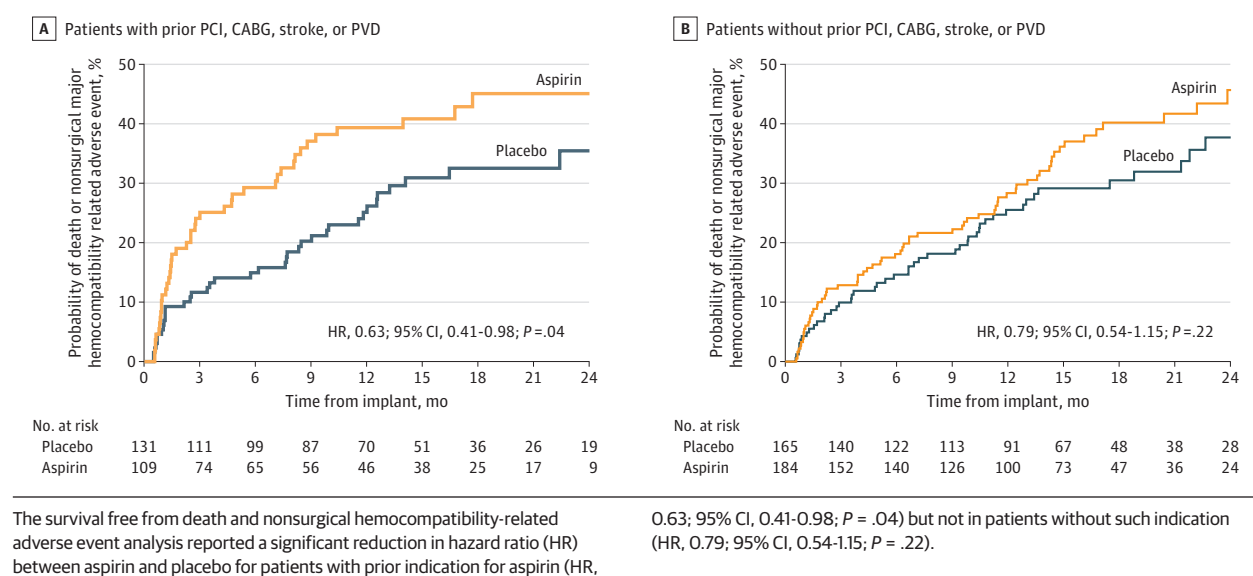
Figure 3. Cumulative Hazard Rates for Moderate or Severe Nonsurgical Bleeding Events Stratified by History of Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Stroke, or Peripheral Vascular Disease (PVD)**A** Patients with prior PCI, CABG, stroke, or PVD**B** Patients without prior PCI, CABG, stroke, or PVD

Although the cumulative incidence of nonsurgical major bleeding events was higher in the group with a prior history of PCI, CABG, stroke, or PVD, the increased rate of bleeding events in the group with a history of vascular disease was due to randomization to aspirin: the rate ratio (RR) for placebo compared

with aspirin was 0.52 (95% CI, 0.35-0.79), whereas the difference in bleeding between aspirin and placebo was attenuated for patients without a history of PCI, CABG, stroke, or PVD with an RR of 0.76 (95% CI, 0.54-1.06).

tion for aspirin (HR, 0.63; 95% CI, 0.41-0.98; P = .04) but not in patients without such indication (HR, 0.79; 95% CI, 0.54-1.15; P = .22) (Figure 4).

Figure 4. Time-to-Event Analysis of the Primary End Point Stratified by History of Percutaneous Coronary Intervention (PCI), Coronary Artery Bypass Grafting (CABG), Stroke, or Peripheral Vascular Disease (PVD)



Discussion

In this prespecified analysis of the ARIES trial, we tested the efficacy and safety of aspirin elimination among those with pre-existing arterial vascular disease undergoing durable LVAD implantation. The study has important considerations and findings. First, we showed that a substantial proportion (41%) of patients undergoing LVAD implantation had a history of PCI, CABG, stroke, or PVD, conditions associated with a classical indication for aspirin use as secondary prophylaxis. Second, the trial excluded only few patients because of an investigator-perceived indication for open-label aspirin, an observation that points to generalizability of the ARIES-HM3 trial. Third, avoidance of aspirin even in patients with a history of prior PCI, CABG, stroke, or PVD did not lead to an increased incidence of thrombosis, and instead, we observed that elimination of aspirin led to a large and meaningful reduction in the risk for major, nonsurgical bleeding in this distinct subgroup with arterial vascular disease.

Aspirin has been a cornerstone in preventing thrombotic events for over a century and is still recommended for secondary prevention in patients with prior PCI, CABG, stroke, or PVD according to guidelines.²⁻⁶ However, if patients are receiving VKA or direct oral anticoagulants (DOACs) due to conditions like atrial fibrillation or mechanical heart valves, the use of aspirin is typically limited to the acute phase after the events, due to concerns for an increased risk of bleeding.⁵ The ARIES-HM3 trial demonstrated that avoiding aspirin among patients receiving a durable LVAD can be safe and reduces bleeding risk, although concerns remain for high-risk subgroups prone to thrombotic events. Earlier experiences with lenient antithrombotic strategies in legacy devices have underscored the risk of pump thrombosis.²¹ As patients are now living longer with LVADs, exceeding 5 to 10 years in most cases,

there is a cumulative risk of arterial vascular complications, especially in high-risk populations. This subanalysis from the ARIES-HM3 trial has provided reassurance that aspirin omission is safe even in patients with a history of remote PCI, CABG, stroke, or PVD undergoing HM3 LVAD implantation. However, these findings may be specific to the HM3 LVAD and not generalizable to other durable LVAD technologies.

Nonsurgical bleeding risk was notably high among the ARIES-HM3 population, especially in those with a history of PCI, CABG, stroke, or PVD. This increased risk in this subgroup is likely attributed to underlying comorbidity in such populations characterized by common bleeding risk factors such as older age, diabetes, and prior sternotomy. Avoiding aspirin brought the bleeding risk in line with that seen in patients without these histories. These findings suggest that a history of PCI, CABG, stroke, or PVD does not necessitate aspirin use for thrombosis prevention after HM3 implantation but instead identifies patients who may have a greater risk of adverse effects with aspirin, leading to higher rates of bleeding, in the unique milieu provided by LVADs. Freedom from HRAEs in patients without a history of PCI, CABG, stroke, or PVD was numerically similar between those randomized to aspirin and placebo (Figure 2A). However, potential inferences about greater safety of aspirin in this group cannot be made based on this analysis further supported by the fact that P value for interaction between the 2 groups (prior vs no prior aspirin indication) was greater than .05.

Limitations

Some limitations should be recognized. The ARIES-HM3 trial included few patients with very recent PCI, CABG, stroke, or PVD limiting power to claim noninferiority of an aspirin avoidance strategy in that subpopulation. Although clinical caution in using our results in such a population is advised, we do draw attention to the fact that the unique rheology of LVADs

with development of an acquired von Willebrand disease in combination with use of VKA targeted to an INR of 2 to 3 may modify the need for antiplatelet therapy use even among those with recent instances of PCI, CABG, or acute myocardial infarction. Several studies in patients who were not treated with an LVAD have documented that aspirin can be safely deferred in patients with atrial fibrillation, and appropriate treatment with VKA or DOAC late after PCI²² or in patients with chronic coronary syndrome²³ may not require use of antiplatelets for longer than 30 days after the event. Another limitation of the study is the fact that the results cannot be extrapolated beyond the 24-month analysis time of the ARIES-HM3 trial. Reassuringly, the results do not indicate a time-dependent effect of aspirin vs placebo on the primary end point. Furthermore, whether or not patients in follow-up who are supported with an HM3 LVAD and have received long-term aspirin treatment should undergo aspirin removal cannot be answered from our trial because this group was not studied. It should be emphasized that the results of the ARIES-HM3 trial, including those obtained in the current subgroup analysis, apply to patients treated with a VKA with a target INR between 2.0 and 3.0. The TTR for the 2 subgroups in the current study was 54% and 55%, and TTRs lower than this range may be associated with a different response to aspirin avoidance.²⁴ Small successful studies replacing VKA with DOACs in selected pa-

tients implanted with an HM3 have been reported and larger studies are under way.^{25,26} It will be important from these studies to learn if aspirin can be avoided in DOAC-based protocols as well and also in individuals with a classical indication for aspirin, as described in the current study. Finally, the results apply only to the fully magnetically levitated centrifugal pump HM3 and cannot be extrapolated to other pumps with different engineering characteristics.

Conclusions

Results of this prespecified analysis of the ARIES-HM3 randomized clinical trial demonstrate that in patients with advanced HF and classical indications for antiplatelet therapy use at the time of durable LVAD implantation, aspirin avoidance (but with background use of VKA) was safe and not associated with increased thrombosis risk. Importantly, elimination of aspirin was associated with a large reduction in non-surgical bleeding events in patients with a history of PCI, CABG, stroke, or PVD. Thus, the presence of these clinical conditions should not compel physicians to use aspirin as part of the antithrombotic regimen after LVAD implantation with the fully magnetically levitated HM3 LVAD.

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Correction: This article was corrected on April 23, 2025, to remove the percentage symbol from the x-axis label, fix a duplicate x-axis tick mark, and correct the position of the noninferiority margin in Figure 2, panel A, and to add the meaning of the vertical dashed line in the Figure 2, panel A caption.

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