ESC European Society of Cardiology

Europace (2025) **27**, euaf212
https://doi.org/10.1093/europace/euaf212

RAPID COMMUNICATION

Influence of proton pump inhibitors on the incidence and clinical course of oesophageal fistula following catheter ablation for atrial fibrillation: a subanalysis of the POTTER-AF study

Thomas Beiert [1]*, Vincent Knappe [1], Andreas Zietzer [1], Vanessa Schmidt [2,3], Helmut Pürerfellner [4], Philipp Sommer [5], Christian Sohns [5], Christian Veltmann [6], Daniel Steven [7], Kyoung-Ryul Julian Chun [8], Philippe Maury [9], Estelle Gandjbakhch [10], Mikael Laredo [10], Stephan Willems [11], Martin Borlich [12], Anna Füting [13,14], Raphael Spittler [15], Sergio Richter [16], Anja Schade [17,18], Malte Kuniss [19], Carsten Wunderlich[20], Dong-In Shin [14,21], Dirk Grosse Meininghaus [22], Marc Bonsels[23], David Reek [24], Uwe Wiegand[25], Alexander Bauer[26], Andreas Metzner [27], Lars Eckardt [28], Olaf Krahnefeld [29], Christian Sticherling [30], Michael Kühne [30], Dinh Quang Nguyen[31], Laurent Roten [32], Dominik Linz [33], Pepijn van der Voort [34], Bart A. Mulder [35], Johan Vijgen [36], Alexandre Almorad [37], Charles Guenancia [38], Laurent Fauchier [39], Serge Boveda [37,40], Yves De Greef [37,41], Antoine Da Costa [42], Pierre Jais [43], Antoine Milhem [44], Laurence Jesel[45], Rodrigue Garcia [46,47], Hervé Poty[48], Ziad Khoueiry[49], Julien Seitz[50], Julien Laborderie[51], Alexis Mechulan [52], Francois Brigadeau[53], Alexandre Zhao[54], Yannick Saludas[55], Olivier Piot [56], Nikhil Ahluwalia [57,58], Claire A. Martin [59], Jian Chen [60], Bor Antolic [61], Georgios Leventopoulos [62], Emin Evren Özcan [63], Hikmet Yorgun [64], Serkan Cay [65], Kivanc Yalin [66], Maichel Sobhy Botros [67], Ewa Jędrzejczyk-Patej [68], Osamu Inaba[69], Ken Okumura [70], Koichiro Ejima [71], Houman Khakpour [72], John N. Catanzaro [73], Vivek Reddy [74], Andrea Natale [75,76,77], Hermann Blessberger [78], Bing Yang [79], Julia Vogler [2,11], Karl-Heinz Kuck [2], José Luis Merino [80], Ahmad Keelani [2†], Christian-H. Heeger [2,81‡], Sorin S. Popescu [2,81¶], and Roland Richard Tilz [2,81*¶]; on behalf of the POTTER-AF Investigators

* Corresponding authors. Tel: +49 228 287 16670; fax: +49 228 287 14983. *E-mail address*: thomas.beiert@ukbonn.de (T.B.); Tel: +49 451 500 44511; fax: +49 451 500 44584. *E-mail address*: tilz6@hotmail.com (R.R.T.)

† Present address. Department of Rhythmology, Bad Berka Central Clinic, Germany.

‡ Present address. Department of Rhythmology, Asklepios Hospital Altona, Hamburg, Germany.

¶ The last two authors contributed equally to the study.

[1]Heart Center Bonn, Department of Internal Medicine II, University Hospital Bonn, Venusberg-Campus 1, Bonn D-53127, Germany; [2]Department of Rhythmology, University Heart Center Lübeck, University Hospital Schleswig-Holstein, Ratzeburger Allee 160, Lübeck D-23538, Germany; [3]Institute for Diagnostic and Interventional Radiology, Faculty of Medicine and University Hospital Cologne, University of Cologne, Cologne, Germany; [4]Interne 2, Ordensklinikum Linz Elisabethinen, Linz, Austria; [5]Kliniken für Elektrophysiologie/Rhythmologie, Herz- und Diabeteszentrum NRW, Universitätsklinik der Ruhr-Universität Bochum, Bad Oeynhausen, Germany; [6]Heart Center Bremen, Electrophysiology Bremen, Bremen, Germany; [7]Department for Electrophysiology, Heart Center University Cologne, Cologne, Germany; [8]MVZ CCB am Agaplesion Markus Krankenhaus, Frankfurt a.M., Germany; [9]Department of Cardiology, University Hospital Rangueil, Toulouse, France; [10]Sorbonne Université, APHP, Pitié Salpêtrière University Hospital, Cardiology Institute, Paris, France; [11]Klinik für Kardiologie und Internistische Intensivmedizin, Asklepios Klinik St. Georg, Hamburg, Germany; [12]Heart Center, Segeberger Kliniken (Academic Teaching Hospital of the Universities of Kiel, Lübeck and Hamburg), Bad Segeberg, Schleswig-Holstein, Germany; [13]Department of Electrophysiology, Alfred Krupp Hospital, Essen, Germany; [14]Department of Medicine, Witten/Herdecke University, Witten, Germany; [15]Department of Cardiology II/Electrophysiology, Center for Cardiology, University Hospital Mainz, Mainz, Germany; [16]Department of Internal and Cardiovascular Medicine, Herzzentrum Dresden, University Clinic, Technische Universität Dresden, Dresden, Germany; [17]Department of Interventional Electrophysiology, Helios Hospital Erfurt, Erfurt, Germany; [18]Department of Rhythmology, Rhoen Klinikum Campus Bad Neustadt/Saale, Bad Neustadt/Saale, Germany; [19]Department of Cardiology, Kerckhoff Heart Center, Bad Nauheim, Germany; [20]Helios Klinikum Pirna, Klinik für Innere Medizin II, Pirna, Germany; [21]Department of Cardiology, Heart Centre Niederrhein, Helios Clinic Krefeld, Krefeld, Germany; [22]Department of Cardiology, Medical University Lausitz - Carl Thiem, Cottbus, Germany; [23]Klinik für Kardiologie, Kliniken Maria Hilf GmbH, Mönchengladbach, Germany; [24]Department of Cardiology, University Hospital Augsburg, Augsburg, Germany; [25]Sana-Klinikum Remscheid GmbH, Akademisches Lehrkrankenhaus der Universität zu Köln, Remscheid, Germany; [26]Innere Medizin I, Diak-Klinikum Schwäbisch Hall und Klinikum Crailsheim, Schwäbisch Hall, Germany; [27]Klinik für Kardiologie, Universitäres Herz- und Gefäßzentrum, Universitätsklinikum Hamburg-Eppendorf, Hamburg, Germany; [28]Department of Cardiology II (Electrophysiology), University Hospital Münster, Münster, Germany; [29]Medizinische Klinik II, Sana Kliniken Lübeck, Lübeck, Germany; [30]Deaprtment of Cardiology, University Hospital Basel, Basel, Switzerland; [31]Kardiologie und Rhythmologie, St. Vinzenz-Hospital Köln, Köln, Germany; [32]Department of Cardiology, Inselspital, Bern University Hospital, University of Bern, Bern, Switzerland; [33]Department of Cardiology, Maastricht University Medical Center and Cardiovascular Research Institute Maastricht, Maastricht, The Netherlands; [34]Cardiology, Catharina Hospital, Eindhoven, The Netherlands; [35]Department of Cardiology, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands; [36]Heart Center Hasselt, Jessa Hospital, Hasselt, Belgium; [37]Heart Rhythm Management Centre, Postgraduate Program in Cardiac Electrophysiology and Pacing, Universitair Ziekenhuis Brussel - Vrije Universiteit Brussel, European Reference Networks Guard-Heart, Brussels, Belgium; [38]Cardiology Department, Dijon University Hospital, Dijon, France; [39]Service de Cardiologie, Centre Hospitalier Universitaire Trousseau, Tours, France; [40]Cardiology – Heart Rhythm Management Department, Clinique Pasteur, Toulouse, France; [41]Department of Cardiology, ZNA Heart Centre, Antwerp, Belgium; [42]Division of Cardiology, Jean Monnet University, Saint-Etienne, France; [43]CHU Bordeaux, Univ. Bordeaux, IHU LIRYC ANR-10-IAHU-04, Bordeaux, France; [44]Cardiology Department, La Rochelle Hospital, La Rochelle, France; [45]Division of Cardiovascular Medicine, University Hospital Strasbourg, Srasbourg, France; [46]Department of Cardiology, University Hospital of Poitiers, Poitiers, France; [47]Centre d'Investigation Clinique 1402, University Hospital of Poitiers, Poitiers, France; [48]Cardiologie, Clinique Tonkin, Lyon, France; [49]Service de Cardiologie, Clinique Saint Pierre, Perpignan, France; [50]Electrophysiology, Hospital St. Joseph, Marseille, France; [51]Cardiology Department, Bayonne Hospital, Bayonne, France; [52]Service de Cardiologie, Hospital Clairval, Marseille, France; [53]Service Cardiologie, University Hospital Lille, Lille, France; [54]Cardiologie et Vasculaire, Clinique Ambroise Parée, Paris, France; [55]Cardiologie, Clinique Pôle Santé République, Clermont Ferrand, France; [56]Centre Cardiologie du Nord, Saint Denis, France; [57]Barts Heart Centre, Barts Health NHS Trust, London, UK; [58]Wiliam Harvey Heart Centre, Queen Mary University of London, London, UK; [59]Department of Cardiology, Royal Papworth Hospital, University of Cambridge, Cambridge, UK; [60]Department of Heart Disease, Haukeland University Hospital, University of Bergen, Bergen, Norway; [61]Department of Cardiology, University Medical Center Ljubljana, Ljubljana, Slovenia; [62]Department of Cardiology, University of Patras, Patras, Greece; [63]Heart Rhythm Management Center, Dokuz Eylul University, Izmir, Turkey; [64]Department of Cardiology, Hacettepe University, Ankara, Turkey; [65]Department of Cardiology, Division of Arrhythmia and Electrophysiology, University of Health Sciences, Yuksek Ihtisas Cardiovascular Building, Ankara City Hospital, Ankara, Turkey; [66]Department of Cardiology, Cerrahpasa Faculty of Medicine, Istanbul University-Cerrahpasa, Istanbul, Turkey; [67]Department of Critical Care Medicine, Faculty of Medicine, Cairo University, Cairo, Egypt; [68]Department of Cardiology, Congenital Heart Diseases and Electrotherapy, Silesian Centre for Heart Diseases, Zabrze, Poland; [69]Department of Cardiology, Japanese Red Cross Saitama Hospital, Saitama, Japan; [70]Division of Cardiology, Saiseikai Kumamoto Hospital, Kumamoto, Japan; [71]Department of Cardiology, Tokyo Women's Medical University, Shinjuku-ku, Tokyo, Japan; [72]UCLA Cardiac Arrhythmia Center, David Geffen School of Medicine at UCLA, Los Angeles, USA; [73]Department of Cardiovascular Sciences, Brody School of Medicine, East Carolina University Health, Greenville, NC, USA; [74]Helmsley Electrophysiology Center, Mount Sinai Fuster Heart Hospital, Icahn School of Medicine at Mount Sinai, New York, NY, USA; [75]Texas Cardiac Arrhythmia Institute, St. David's Medical Center, Austin, TX, USA; [76]Department of Biomedicine and Prevention, Division of Cardiology, University of Tor Vergata, Rome, Italy; [77]Metro Health Medical Center, Case Western Reserve University School of Medicine, Cleveland, OH, USA; [78]Department of Cardiology, Kepler University Hospital, Linz, Austria; [79]Department of Cardiology, Shanghai East Hospital, Tongji University, Shanghai, China; [80]La Paz University Hospital, Universidad Autónoma de Madrid, Idipaz, Madrid, Spain; and [81]German Center for Cardiovascular Research (DZHK), Partner Site Hamburg/Kiel/Lübeck, Lübeck, Ratzeburger Allee 160, 23538 Lübeck, Germany

Received 21 July 2025; accepted after revision 26 July 2025; online publish-ahead-of-print 24 October 2025

Keywords Atrial fibrillation • Catheter ablation • Oesophageal fistula • Proton pump inhibitor

Introduction

Atrial fibrillation (AF) represents the most common cardiac arrhythmia with an increasing incidence and prevalence worldwide.[1] Pulmonary vein isolation (PVI) via catheter ablation is the cornerstone of AF treatment.[1] Despite years of experience and significant technological advances, oesophageal fistula (OF) remains the most severe complication of catheter ablation for AF, associated with high morbidity and mortality.[2,3] The POTTER-AF study reported a very low incidence of 0.025%.[2] Therefore, data on effective preventive measures remain limited. Despite the lack of evidence, proton pump inhibitor (PPI) therapy is a widely adopted prophylactic treatment.[4,5] While PPIs are considered to be generally well tolerated, recent studies have demonstrated relevant pharmacological interactions and adverse effects, warranting a cautious prescription.[6] The aim of this study was to evaluate the impact of routine PPI use on the incidence and clinical course of OF in the POTTER-AF study.

Methods

All patients diagnosed with an OF from the POTTER-AF study were stratified based on the use of post-procedural PPI.

Normally distributed variables are reported as mean ± standard deviation. Non-normally distributed variables are shown as median and interquartile range. The unpaired Student's *t*-test was conducted for group comparisons if normally, and the Mann–Whitney U test if non-normally distributed. Categorical variables are displayed as absolute numbers and relative frequencies and were compared using Fisher's exact test.

Results

Routine proton pump inhibitor prescription

Of the participating centres, 195 of 214 had available data on institutional routine post-procedural PPI prescription. In 155 centres (79.5%), patients were routinely treated with PPI after an AF ablation procedure. The mean rate of OF in those centres was 0.023% ± 0.053%, compared to 0.024% ± 0.067% in centres without routine PPI treatment ($P = 0.842$; *Figure 1A*).

Throughout the study period, we observed an increase in PPI prescription in the cohort of OF patients, rising from 30% before 2009 to 93% after 2018 (*Figure 1B*).

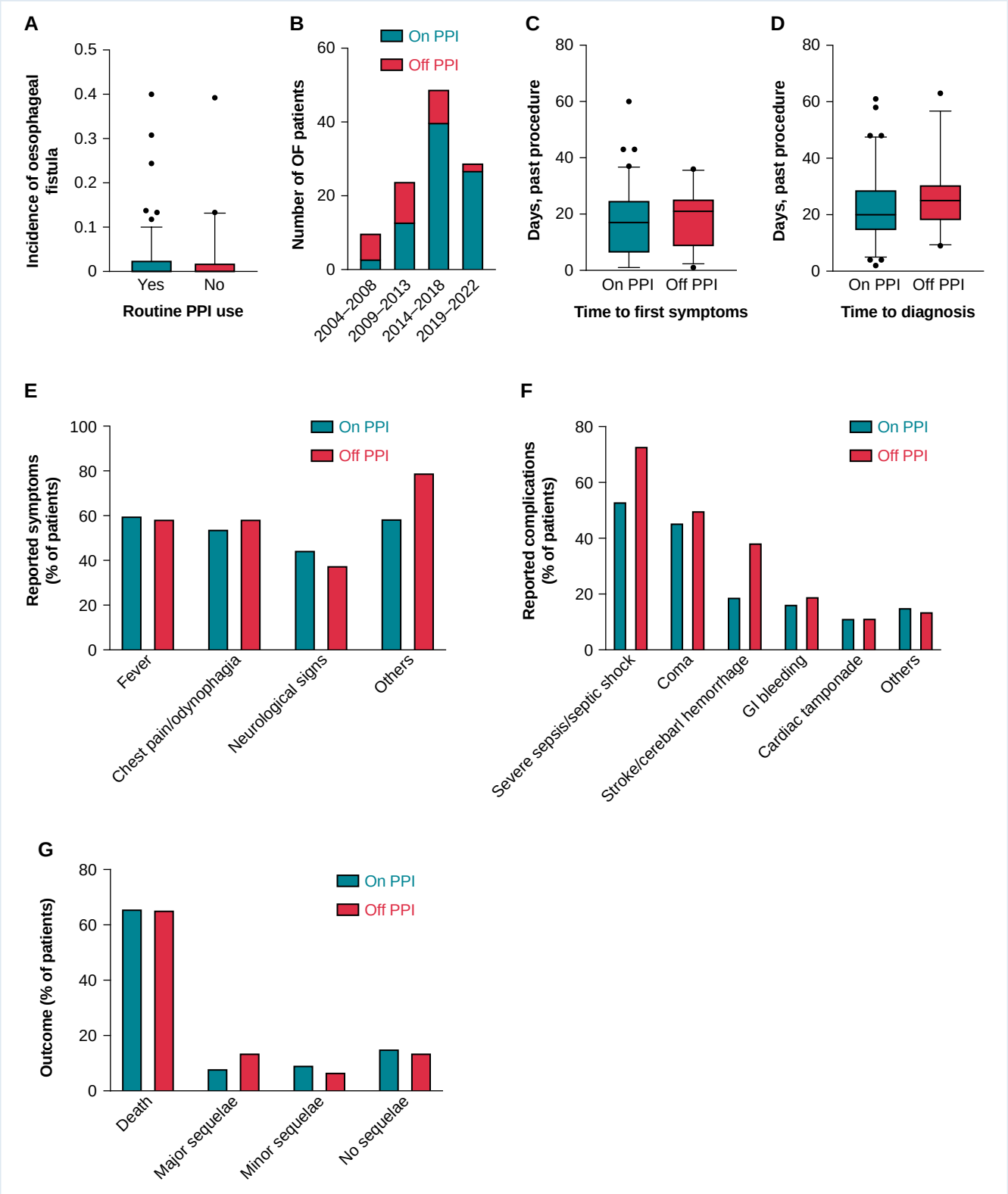

Figure 1 (*A*) Incidence of OF in relation to institutional routine post-procedural PPI treatment. Data points represent individual institutions. (*B*) Development of PPI prescription in OF patients over time. Displayed are numbers of OF patients with and without PPI prescription in indicated time frames. (*C* and *D*) Time to first symptoms (*C*) and time to diagnosis (*D*). Data points represent individual patients. (*E*) Overview of symptoms on first clinical presentation. (*F*) Overview of complications. (*G*) Overview of the outcome of all patients with OF. PPI, proton pump inhibitor; GI, gastrointestinal. The bottom and top edges of the box plots represent the 25th and 75th percentiles, and the lower and upper whiskers give the 5th and 95th percentiles, respectively. The lines within the boxes indicate the median values.

Patient population

Data on periprocedural characteristics, management, outcome and information on post-procedural PPI prescription were available for 114 patients with OF. Patients had a mean age of 62.5 ± 11.4 years. Paroxysmal, persistent, and long-standing persistent AF were present in 43%, 50%, and 7% of patients, respectively. Eighty-five patients (75%) were treated with PPI after the ablation procedure. The proportion of female patients was significantly lower in the cohort with PPI compared to the group without (41.2% vs. 67.9%, $P = 0.017$). No other differences were noted.

The energy source used was radiofrequency in 96.5%, cryoballoon in 2.6%, and laser balloon in 0.6% of patients, with no significant differences between the groups. Contact force measuring catheters were used more often in the 'on PPI' group (56.3% vs. 17.2%, $P < 0.001$). Additional linear ablations in the left atrium were performed in 45.7% of patients.

Patient presentation

The median time between procedure and onset of symptoms was comparable between groups (17.0 (6.0, 25.0) days vs. 21.0 (8.3, 25.5) days for patients 'on PPI' and 'off PPI', respectively, $P = 0.177$; *Figure 1C*). Similarly, the median time to diagnosis was 20.0 (14.3, 29.0) days in patients treated with PPI and 25.0 (17.8, 30.8) days in those without ($P = 0.123$; *Figure 1D*).

The primary initial symptoms in patients with and without PPI treatment included fever (60.0% vs. 58.6%, $P = 1.00$), chest pain or odynophagia (54.1% vs. 58.6%, $P = 0.829$), neurological symptoms (stroke or seizures) (44.7% vs. 37.9%, $P = 0.665$), and others (58.8% vs. 79.3%, $P = 0.072$) (*Figure 1E*).

Complications and outcome

The complication rate did not differ between patients treated with PPI compared to those without (*Figure 1F*). Most frequently observed were severe sepsis or septic shock (53.2% vs. 73.1%, $P = 0.108$), coma (45.6% vs. 50.0%, $P = 0.821$), stroke or cerebral haemorrhage (19.0% vs. 38.5%, $P = 0.062$), gastrointestinal bleeding (16.5% vs. 19.2%, $P = 0.768$), cardiac tamponade (11.4% vs. 11.5%, $P = 1.00$), or others (15.3% vs. 13.8%, $P = 0.222$).

Mortality was high and comparable in both groups (65.9% for patients 'on PPI' vs. 65.5% for patients 'off PPI', $P = 1.00$; *Figure 1G*). A total of 7/85 (8.2%) vs. 4/29 (13.8%) and 8/85 (9.4%) vs. 2/29 (6.9%) patients experienced major or minor sequelae, respectively ($P = 0.467$ and $P = 1.00$). Only 13/85 (15.3%) vs. 4/29 (13.8%) patients had no sequelae ($P = 1.00$).

Discussion

The key findings of the study are as follows:

(1) The incidence of OF did not differ between centres with and without post-procedural PPI prescription.
(2) Patients with and without PPI had comparable time to symptom onset, complication rate, and mortality.
(3) The use of PPI following AF ablation has significantly increased over time.

Proton pump inhibitors are widely prescribed after left atrial ablation procedures to reduce gastric acidity, as gastroesophageal reflux is thought to contribute to the progression of ablation-induced oesophageal lesions and OF formation.[4,5,7,8] Beyond potential prevention, PPI therapy might influence the time course and clinical presentation of OF. However, no difference in OF incidence was observed between centres with or without routine PPI use. Similarly, a study from Ugata *et al.*[9] showed no reduction of mortality or severe oesophageal injury with prophylactic PPI. A recent substudy of the MADE-PVI trial suggested a protective effect in patients with pre-existing reflux oesophagitis.[10] Nevertheless, no definite conclusions can be drawn from those observational or *post hoc* analyses, and no additional evidence supports or contradicts the use of PPI therapy.[8] As the present study is a retrospective analysis exclusively in patients with OF, the independent and causal influence of post-procedural PPI prescription on the incidence of OF cannot be evaluated.

We observed comparable time to first symptoms, time to diagnosis, symptom burden, complications, and outcome, altogether questioning the effectiveness of PPI in OF prevention. Nevertheless, despite the lack of randomized data, empirical PPI treatment remains a reasonable approach due to its low cost and favourable safety profile, at least for thermal ablations. But trade-offs including relevant pharmacological interactions and an increased risk of infections should be considered.[6]

Limitations

The retrospective nature of the study bears known limitations. Possible practice changes in routine PPI prescription during the observational period were not evaluated. The details on PPI therapy are not known and might have changed over the observational period.

Acknowledgements

We thank all the local investigators and assistant personnel for their great effort. Furthermore, we thank all the POTTER-AF collaborators.

Funding

All authors declare no funding for this contribution.

IRB information

The POTTER-AF study was approved by the Ethics Commission of the University of Luebeck (reference number: AZ 21–291).

Conflict of interest: R.R.T. is a consultant for Boston Scientific, Philips, Medtronic, Biosense Webster, and Abbott Medical; is a shareholder and medical director by Active Health; had received speaker honoraria from Boston Scientific, Biotronik, Biosense Webster, Abbott Medical, Lifetech, and Pfizer; has received research grants from Abbott, Biotronik, Medtronic, Biosense Webster, and Lifetech; and has received travel grants from Abbott, Biosense Webster, Boston Scientific, Medtronic, and Philips. S.S.P. is a medical consultant by Active Health and has received travel grants and congress grants from Lifetech and educational grants and a speaker grant from Abbott Medical. T.B. discloses speaking honoraria and travel expenses from Abbott, Biosense Webster, Biotronik, Boehringer Ingelheim, Boston Scientific, Bristol Myers Squibb, Medtronic, Pfizer, and Zoll, outside the submitted work. K.-H.K. reports grants and personal fees from Abbott Vascular, Medtronic, and Biosense Webster, outside the submitted work. C.-H.H. received travel grants and research grants from Abbott, Haemonetics, Boston Scientific, Lifetech, Biosense Webster, and Cardiofocus and speaker honoraria from Haemonetics, Medtronic, Abbott, Boston Scientific, Novartis, Pfizer, Biosense Webster, Cardiofocus, C.T.I. GmbH, and Doctrina Med. He is a consultant of Boston Scientific, Lifetech, Haemonetics, Biosense Webster, and Cardiofocus. J.V. received speaker honoraria from Abbott, Boston Scientific, Impulse Dynamics, Pfizer, and Doctrina Med. H.P. received honoraria or consultation fees from Bayer, Daiichi Sankyo, Boehringer Ingelheim, Pfizer, Abbott, Biosense Webster, Boston Scientific, and Medtronic and participated in a company sponsored speaker's bureau for Biosense Webster, Abbott, Medtronic, and Boston. M.M. is a consultant and speaker of Abbott Medical, Biosense Webster, Medtronic, and Boston Scientific. P.S. served on advisory boards for Biosense Webster, Boston Scientific, Abbott, and Medtronic. C.S. received research support and lecture fees from Medtronic, Abbott, Boston Scientific, and Biosense Webster. In addition, C.S. is a consultant for Medtronic, Boston Scientific, and Biosense Webster. C.V. received consulting honoraria from Biotronik and Medtronic and training and speaker's honoraria from Medtronic, BMS, and Zoll. S.W. received consulting fees from Abbott, Biosense Webster, Boston Scientific, Bristol Myers Squibb, Boehringer Ingelheim,

Medtronic, and Daiichi and grants from Abbott and Boston Scientific. S.R. is a consultant for Medtronic, Abbott, and Biotronik and a member of the Medtronic European Conduction System Pacing Advisory Board. M.K. received honoraria for teaching, proctoring, and lectures, honoraria for advisory board activities, participation in clinical trials, and travel grants. C.W. received lecture fees from Biosense Webster. U.W. received lecture fees from Abbott Medical und Medtronic Inc. J.S. is shareholder by Volta medical and reports consultant and speaker fees from Biosense, Abbott, and Medtronic. A.M. received consultant fees from Medtronic, CardioFocus, Biosense Webster, and Boston Scientific and travel grants and lecture honoraria from Medtronic, Cardiofocus, Biosense Webster, Boston Scientific, Lifetech, AstraZeneca, Boehringer Ingelheim, Bayer, and Philips-EPD. L.E. discloses consultant fees, speaking honoraria, and travel expenses from Abbott, Bayer Healthcare, Biosense Webster, Biotronik, Boehringer, Boston Scientific, Bristol Myers Squibb, Daiichi Sankyo, Medtronic, Pfizer, and Sanofi Aventis. Research has been supported by German Research Foundation (DFG) and German Heart Foundation outside the submitted work. C.S. reports grants and lecture fees from Biosense Webster and Medtronic and served as a proctor for Biosense Webster and Medtronic. He also reports grants from the Swiss Heart Foundation, the Foundation for Cardiovascular Research Basel, and the University of Basel. L.R. has received research grants from Medtronic, the Swiss National Foundation, the Swiss Heart Foundation, the Immanuel and Ilse Straub Foundation, and the Sitem Insel Support Fund, all for work outside the submitted study. He has received speaker fees/honoraria from Biosense Webster, Boston Scientific, Abbott, and Medtronic. A.A. received institutional grants for research, teaching, advisory, and proctoring purposes from Abbott, Boston, JnJ Medtech, and Medtronic, none related to this work. C.G. received research grants from MicroPort CRM; consultant fees from MicroPort CRM, Boston Scientific, Abbott, and Medtronic; and honoraria from Biotronik, Medtronic, AstraZeneca, BMS-Pfizer, and Biosense Webster. L.F. reports consulting fees for AstraZeneca, Bayer, BMS/Pfizer, Boehringer Ingelheim, Medtronic, Novo Nordisk, and Novartis and lecture fees for AstraZeneca, Bayer, BMS/Pfizer, Boehringer Ingelheim, and Zoll. S.B. received consultant fees for Medtronic, Boston Scientific, Microport, and Zoll. N.L. received consulting fees from Abbott Medtronic and Boston Scientific PJ Grant from Biosense Webster, Metronic, Abbott, and Boston. C.M. received speaker honoraria and consultancy fees from BSCI, Medtronic, Biosense Webster, and Adagio. J.C. serves as a consultant for Biosense Webster, Johnson & Johnson. G.L. has received funding from Biosense Webster, Medtronic, and Abbott (speaker honoraria). E.E.Ö. reports payment from healthcare industry to his institution for his personal services and honoraria, consultancy, and advisory board from Biosense Webster and Medtronic. H.Y. is a proctor for Abbott, Medtronic, and Biosense Webster. S.C. reports travel grants and speaker's honoraria from Medtronic, Biosense Webster, and Abbott and is a proctor of Medtronic and Biotronik. E.J. received consultant fees from Biotronik, Medtronic, Abbott, and Boston Scientific. K.O. received remuneration from Nippon Boehringer Ingelheim, Daiichi Sankyo, Johnson & Johnson, and Medtronic. J.N.C. received research support from Circa Scientific. A.N. is a consultant for Abbott, Baylis, Biosense Webster, Biotronik, Boston Scientific, and Medtronic. DS received research grant from Abbott, Medtronic, Johnson & Johnson; advisory board fee from Pfizer and Abbott; and speaker fee from Abbott, Medtronic, and Johnson & Johnson. J.L.M. received speaker fees and/or honoraria for lectures and scientific advice from Biotronik, Medtronic, Microport, Milestone Pharmaceutical, Sanofi, and Zoll. All other authors have no relevant disclosures.

Data availability

Data supporting the POTTER-AF study are curated at the Study Centre of the Department of Rhythmology, University Hospital Schleswig-Holstein, Germany. These data are not shared openly but are available on reasonable request from the corresponding authors.

References

1. Gelder ICV, Rienstra M, Bunting KV, Casado-Arroyo R, Caso V, Crijns HJGM *et al.* 2024 ESC guidelines for the management of atrial fibrillation developed in collaboration with the European Association for Cardio-Thoracic Surgery (EACTS). *Eur Hear J* 2024;**45**:3314–414.
2. Tilz RR, Schmidt V, Pürerfellner H, Maury P, Chun KRJ, Martinek M *et al.* A worldwide survey on incidence, management, and prognosis of oesophageal fistula formation following atrial fibrillation catheter ablation: the POTTER-AF study. *Eur Hear J* 2023;**44**:2458–69.
3. Tilz RR, Pürerfellner H, Kuck K-H, Merino JL, Schmidt V, Vogler J, *et al.* Under"-reporting of complications following AF ablation: comparison of the manufacturer and user facility device experience FDA database and a voluntary invitation-based registry—the POTTER-AF 3 study. *Hear Rhythm* 2025;**22**:1472–1479.
4. Bodziock GM, Norton CA, Montgomery JA. Prevention and treatment of atrioesophageal fistula related to catheter ablation for atrial fibrillation. *J Innov Card Rhythm Manag* 2019;**10**:3634–40.
5. Zellerhoff S, Lenze F, Eckardt L. Prophylactic proton pump inhibition after atrial fibrillation ablation: is there any evidence? *Europace* 2011;**13**:1219–21.
6. Nehra AK, Alexander JA, Loftus CG, Nehra V. Proton pump inhibitors: review of emerging concerns. *Mayo Clin Proc* 2018;**93**:240–6.
7. Kapur S, Barbhaiya C, Deneke T, Michaud GF. Esophageal injury and atrioesophageal fistula caused by ablation for atrial fibrillation. *Circulation* 2017;**136**:1247–55.
8. Leung LWM, Akhtar Z, Sheppard MN, Louis-Auguste J, Hayat J, Gallagher MM. Preventing esophageal complications from atrial fibrillation ablation: a review. *Hear Rhythm O2* 2021;**2**:651–64.
9. Ugata Y, Michihata N, Matsui H, Fushimi K, Yasunaga H. Impact of proton pump inhibitors on mortality and severe esophageal injury after catheter ablation for atrial fibrillation: a nationwide retrospective study using propensity score matching. *Hear Vessel* 2021;**36**:1730–8.
10. Cordes F, Ellermann C, Dechering DG, Frommeyer G, Kochhäuser S, Lange PS *et al.* Pre-procedural proton pump inhibition is associated with fewer peri-oesophageal lesions after cryoballoon pulmonary vein isolation. *Sci Rep* 2021;**11**:4728.