Table S1 NOS for cohort studies included in the systematic review and meta-analysis of the association between TMAO and AF

Authors, year	Selection				Comparability	Outcome			Final score
	Representativeness of the exposed cohort	Selection of the non-exposed cohort	Ascertainment of exposure	Demonstration that outcome of interest was not present at start of study	Comparability of cohorts based on the design or analysis	Assessment of outcome	Was follow-up long enough for outcomes to occur	Adequacy of follow up of cohorts	
Suzuki, 2016 (25)	*	*	*	*	*	*	*	–	7
Svingen, 2018 (WECAC) (21)	*	*	*	*	**	*	*	*	9
Zhou, 2020 (26)	–	*	*	*	*	*	*	–	6
Kinugasa, 2021 (27)	*	*	*	*	*	*	*	–	7

One star represents a score of 1, and a study can be awarded a maximum score of 9 in total. "*" represents score of 1; "**" represents score of 2; "–" represents score of 0. NOS, Newcastle-Ottawa Quality Assessment Scale; TMAO, trimethylamine N-oxide; AF, atrial fibrillation; WECAC, Western Norway Coronary Angiography Cohort.

Table S2 NOS for case-control studies included in the systematic review and meta-analysis of the association between TMAO and AF

Authors, year	Selection				Comparability	Exposure			Final score
	Is the case definition adequate?	Representativeness of the cases	Selection of controls	Definition of controls	Comparability of cases and controls based on the design or analysis	Ascertainment of exposure	Same method of ascertainment for cases and controls	Non-response rate	
Papandreou, 2021 (22)	*	*	*	*	**	*	*	–	8

One star represents a score of 1, and a study can be awarded a maximum score of 9 in total. "*" represents score of 1; "**" represents score of 2; "–" represents score of 0. NOS, Newcastle-Ottawa Quality Assessment Scale; TMAO, trimethylamine N-oxide; AF, atrial fibrillation.

Table S3 AHRQ checklist to assess the quality of the cross-sectional studies included in the meta-analysis of the association between TMAO and AF

ARHQ methodology checklist items for cross-sectional study	Stubbs, 2019 (28)
(I) Define the source of information (survey, record review)	1
(II) List inclusion and exclusion criteria for exposed and unexposed subjects (cases and controls) or refer to previous publications	1
(III) Indicate time period used for identifying patients	0
(IV) Indicate whether or not subjects were consecutive if not population-based	1
(V) Indicate if evaluators of subjective components of study were masked to other aspects of the status of the participants	1
(VI) Describe any assessments undertaken for quality assurance purposes (e.g., test/retest of primary outcome measurements)	1
(VII) Explain any patient exclusions from the analysis	1
(VIII) Describe how confounding was assessed and/or controlled.	1
(IX) If applicable, explain how missing data were handled in the analysis	1
(X) Summarize patient response rates and completeness of data collection	0
(XI) Clarify what follow-up, if any, was expected and the percentage of patients for which incomplete data or follow-up was obtained	0
Final score	8

If the answer was "no" or "unclear", the item was scored "0"; otherwise, the item was scored "1". The maximum score for the scale is 11 points. The final quality scores were as follows: 0 to 3 was considered low quality, 4 to 7 moderate quality, and 8 to 11 high quality. AHRQ, Agency for Healthcare Research and Quality (available online: https://www.ncbi.nlm.nih.gov/books/NBK35156/); TMAO, trimethylamine N-oxide; AF, atrial fibrillation.