STROBE Statement—Checklist of items that should be included in reports of ***observational studies***

Biomarkers and Key Pathways in Atrial Fibrillation Associated with Mitral Valve Disease Identified by Multi-omics Study

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Original Article ATM-20-3767R1 for resubmission to ***Annals of Translational Medicine***

	Item No	Recommendation	Page No/Line No	Section/ Paragraph
Title and abstract	1	(*a*) Indicate the study' s design with a commonly used term in the title or the abstract	Page 2/Line 3-6	Abstract/Paragraph 1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Page 2/Line 7-23 – page 3/Line 25	Abstract/Paragraph 2-4
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	Page 4/Line 27-38	Introduction/Paragraph 1-3
Objectives	3	State specific objectives, including any prespecified hypotheses	Page 4/Line 39-44	Introduction/Paragraph 4
Methods				
Study design	4	Present key elements of study design early in the paper	Page 4/Line 47-page 6/Line 83	Methods/ Paragraph 1-5
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Page 4/Line 47-page 5/Line 60	Methods/Paragraph 1
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	Page5/Line48-57	Methods/Paragraph 1
		(*b*) For matched studies, give matching criteria and the number of controls per case	Page4-5/Line 47-57	Methods/Paragraph 1
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Page 4-5/Line 47-57 Page5/Line	Methods/Paragraph 1,4,5,6,7

			63-page6/Line 83	
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	Page4-5/Line47-57; page 5-6/Line 63-83	Methods/Paragraph 3-5
Bias	9	Describe any efforts to address potential sources of bias	Page5/Line 48-57	Methods/Paragraph 1
Study size	10	Explain how the study size was arrived at	Page4/Line 48-50	Methods/Paragraph 1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Page4/Line 48-50 Page 6/Line 84-88	Methods/Paragraph 1 Methods/Paragraph 7
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Page 6/Line 84-88	Methods/Paragraph 8
		(*b*) Describe any methods used to examine subgroups and interactions	Page 5-6/Line 63-88	Methods/Paragraph 5-7
		(*c*) Explain how missing data were addressed	No missing data	No missing data
		(*d*) If applicable, explain how matching of cases and controls was addressed	Page 5/Line 48-57	Methods/Paragraph 1
		(*e*) Describe any sensitivity analyses	No sensitivity analyses required	No sensitivity analyses required
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Page 6-7/Line 92-97	Results/Patient characteristics
		(b) Give reasons for non-participation at each stage	non-participation not happened	non-participation not happened
		(c) Consider use of a flow diagram	Page 26	Figure 6
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic,	Page 6-7/	Results/Patient

		clinical, social) and information on exposures and potential confounders	Line 92-97	characteristics
		(b) Indicate number of participants with missing data for each variable of interest	No missing data	No missing data
Outcome data	15*	Report numbers in each exposure category, or summary measures of exposure	Page 7-8/Line 98-132	Results/Proteomics-combined proteomics and metabolomics analysis in chronic AF
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Page 7/Line 93—Page 9 line 144	Results/Proteomics-Metabolomics analysis in chronic AF
		(*b*) Report category boundaries when continuous variables were categorized	Page 7/Line 98—Page 8 line 132	Results/Proteomics-Metabolomics analysis in chronic AF
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	No relative risk described	No relative risk described
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Page 8/Line 133-page 9/Line145	Results/Combined proteomics and metabolomics analysis in chronic AF
Discussion				
Key results	18	Summarise key results with reference to study objectives	Page 9/Line 150-157	Discussion/Paragraph 1
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	Page 13/Line 236-241	Discussion/Paragraph 10（Study Limitations）
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page 9/Line 150-page12/Line 235	Discussion/Paragraph 1-9
Generalisability	21	Discuss the generalisability (external validity) of the study results	Page13/Line	Conclusion/Paragraph 1

			242-251	
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	Page 14/Line 258	Sources of Funding

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

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*As the checklist was provided upon initial submission, the page number/line number reported may be changed due to copyediting and may not be referable in the published version. In this case, the section/paragraph may be used as an alternative reference.