Online Resource 4

STROBE checklist for cohort studies

Acute kidney injury is associated with less reversal of urinary metabolomic changes after coronary artery bypass grafting

Journal: Metabolomics

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Locations refer to section numbers, figures and tables in the current manuscript and Online Resource 1. Page numbers are intentionally omitted because pagination varies between word processors. Reporting limitations are retained.

Item	STROBE recommendation	Metabolomics manuscript location	How addressed / reporting limit
1a	Indicate the study's design with a commonly used term in the title or abstract.	Title and Abstract	The abstract identifies a secondary reanalysis of a repeatedly sampled CABG cohort. The title states the observed association without claiming clinical recovery.
1b	Provide an informative and balanced summary of what was done and what was found.	Abstract	Reports the patients, sampling, defined measures, principal estimates and the need for independent longitudinal replication.
2	Explain the scientific background and rationale.	1. Introduction	Explains why a group difference at one timepoint cannot answer whether an individual profile moves back toward its own preoperative state.
3	State specific objectives, including prespecified hypotheses.	1. Introduction, final paragraph	States the within-patient question and supporting analyses. The manuscript does not claim prospective preregistration of the exploratory analyses.
4	Present key elements of study design early.	Abstract; 2.1	Identifies the secondary observational design, public source datasets and absence of new participant or specimen collection.
5	Describe setting, locations, relevant dates and periods.	2.1–2.2; Table 1	The CABG setting, source records and perioperative sampling times are stated. Recruitment centers and dates are not restated in this reanalysis.
6a	Give eligibility criteria, sources and methods of participant selection and follow-up.	2.2; 3.1; Fig. 1a	Requires exactly one sample at each of T1–T4. Reports 145 included patients and 14 excluded incomplete series with group counts.
6b	For matched studies, give matching criteria and numbers.	Not applicable	No matched study design was used.
7	Clearly define outcomes, exposures, predictors, confounders and diagnostic criteria.	2.2–2.5; S1.2–S1.6 and S1.8–S1.10; Online Resource 1	Defines source AKI groups and molecular measures. Independent reconstruction of AKI criteria and complete clinical covariates was unavailable.

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8	For each variable, give data sources and measurement details; describe comparability.	2.1–2.5; Data availability; Table S5; Online Resource 1	Specifies source matrices, timepoints, preprocessing and measurement definitions. Distinguishes repeated urine, single-timepoint urine and unpaired tissue data.
9	Describe efforts to address potential sources of bias.	2.2–2.6; 4. Discussion	Describes complete-case selection, patient-level resampling and leave-one-patient-out trajectory construction; acknowledges unavailable confounders and diagnostic timing.
10	Explain how study size was arrived at.	2.2; 3.1	Uses all 145 patients satisfying four-timepoint completeness. The sample size was determined by available source data, not an outcome-based selection.
11	Explain handling of quantitative variables and any groupings.	2.3–2.6; S1.3–S1.10; Online Resource 1	Defines distances, ratios, direction cosines, scaling and the bounded time coordinate. Exploratory display cutoffs are the two cohort medians.
12a	Describe all statistical methods, including control of confounding.	2.4; 2.6; S1.4–S1.10; Online Resource 1	Reports permutation directions, resampling units, interval methods and correction families. Profile-magnitude sensitivity is not clinical confounder adjustment.
12b	Describe methods used to examine subgroups and interactions.	2.5; 3.4; S1.9; Online Resource 1	Identifies the source-defined severe-versus-mild AKI comparison as secondary. No interaction analysis was performed.
12c	Explain how missing data were addressed.	2.2–2.3; 2.5; S1.3 and S1.8; Online Resource 1	Reports no non-finite values in either analyzed urine matrix and no need for new imputation. Incomplete longitudinal sampling and zero-value handling are described.
12d	If applicable, explain how loss to follow-up was addressed.	2.2; 3.1	This reanalysis used existing samples rather than new follow-up. Fourteen incomplete source series were excluded; their group counts are reported.
12e	Describe sensitivity analyses.	2.4; 3.3–3.4; S1.5–S1.6; Figs. S2–S4; Online Resource 1	Reports alternative preprocessing, fitted time lag, profile-magnitude residuals, delete-one analyses and the secondary severity comparison.
13a	Report numbers at each stage of the study.	2.2; 3.1; Table 1; Fig. 1a	Reports source and included patients, AKI groups, excluded series, sample numbers and shared features. External populations are listed separately.
13b	Give reasons for non-participation at each stage.	2.2; 3.1; Fig. 1a	Fourteen patients lacked complete sampling: 5 AKI and 9 non-AKI. More detailed reasons for missing samples were not established.
13c	Consider use of a flow diagram.	Fig. 1a	The cohort/sampling panel shows source patients, complete cases, exclusions and timepoints.
14a	Give participant characteristics and relevant exposures/confounders.	2.2; 3.1; Table 1; 4. Discussion, limitations	Reports available study populations and group counts. Detailed patient-level clinical characteristics and covariates for adjustment were unavailable.
14b	Indicate number with missing data for each variable of interest.	2.2–2.3; 2.5; S1.3 and S1.8; Online Resource 1	Provides sampling completeness and feature-matrix non-finite counts. Does not claim per-variable clinical missingness counts for unavailable covariates.
14c	Summarize follow-up time.	2.2; Table 1	The molecular observation period runs from preoperative T1 through approximately 44 h after surgery. Clinical recovery follow-up was not analyzed.

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15	Report numbers of outcome events or summary measures over time.	3. Results; Figs. 1–4	Reports source AKI counts and summaries of repeated profiles, patient-level return measures, trajectory distances and separate-cohort findings.
16a	Give unadjusted and adjusted estimates with precision; state confounders.	3.2–3.4; S1.6; Tables S1–S4; Online Resource 1	Reports unadjusted contrasts with intervals and effect sizes. The profile-magnitude residual sensitivity is reported as inconclusive; no clinical covariate-adjusted effect is claimed.
16b	Report category boundaries when continuous variables were categorized.	S1.7; Fig. S1; Online Resource 1	Both coordinates are split at zero after median centering and robust scaling, corresponding to cohort medians. Regions are descriptive rather than clinical categories.
16c	Translate relative risk into absolute risk when relevant.	Not applicable to primary comparisons	No relative-risk model was fitted. The supplementary logistic associations are exploratory, not an absolute-risk prediction tool.
17	Report other analyses, including subgroup and sensitivity analyses.	3.3–3.4; Figs. S1–S5; Tables S1–S4; Online Resource 1	Reports sensitivity and supporting analyses, including the inconclusive time-lag, magnitude-residual and severity results.
18	Summarize key results with reference to objectives.	4. Discussion, first paragraph	Restates the principal within-patient result in terms of remaining relative difference and direction of change from 20 to 44 h.
19	Discuss limitations, including potential bias and imprecision.	4. Discussion, limitations; S1.1–S1.11; Online Resource 1	Addresses one source longitudinal cohort, complete-case selection, diagnostic timing, clinical covariates, structural identification, fitted-coordinate limits and non-equivalent external data.
20	Give a cautious overall interpretation considering objectives and multiplicity.	4. Discussion; 5. Conclusions	Separates measured profile changes from kidney-function recovery, independent mechanisms, clinical prediction and normal-recovery delay.
21	Discuss generalizability.	4. Discussion, clinical question and limitations	Limits the main finding to the available on-pump CABG data and states that independent repeated urine sampling and clinical follow-up are needed.
22	Give funding source and role of funders for this and original study.	Title-page acknowledgments; Statements and declarations—Funding	Reports the reanalysis funder, grant, recipient and funder role. Funding of the original source studies is not restated.