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

	Item No.	Recommendation	Page No.	Relevant text from manuscript
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	P1, L16–17	Methods: "A total of 96 COPD patients… were analyzed by propensity score matching."
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	P1, L12–24	Background,Objective,Methods,Results,Conclusion
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	P1, L33–52	"there is still a lack of clinical data…"
Objectives	3	State specific objectives, including any prespecified hypotheses	P1–P2, L54–56	"this study conducts a comprehensive evaluation of the application effects of LD-MSS…"
Methods				
Study design	4	Present key elements of study design early in the paper	P2, L61–71	"A total of 161 COPD patients with RF admitted to our hospital from February 2021 to May 2023 were selected for retrospective analysis… After propensity score matching (PSM, 1:1), a total of 96 patients were included."
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	P2, L65;L96–101;P3, L121–123	"from February 2021 to May 2023"; "once daily for 7 consecutive days"; "nursing satisfaction was assessed upon hospital discharge."
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—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 *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	P2, L65–71;L76–85	"A total of 161 COPD patients with RF admitted to our hospital… were selected for retrospective analysis"; "Eligibility criteria…"; "Exclusion criteria…"
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed	P2, L66–71	"The matching caliper value was set to 0.05…"; "After propensity score matching (PSM, 1:1)…

		Case-control study—For matched studies, give matching criteria and the number of controls per case		experimental group (n=48)… control group (n=48).”
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	P2, L76–77;L88–101;P3, L124–138	“diagnosed as COPD and type II RF”; “The experimental group received LD (40 mg) MSS…”; “Outcome measures…”
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	P2, L104–123;P3, L125–138	“Forced vital capacity (FVC)… were measured”; “Blood gas indexes… were measured”; “C-reactive protein (CRP) and procalcitonin (PCT) were determined.”
Bias	9	Describe any efforts to address potential sources of bias	P2, L66–69;P3, L140–146	“SMD<0.1 was considered to be good balance”; “To minimize potential bias, the following measures were adopted…”
Study size	10	Explain how the study size was arrived at	P2, L61–64	“Sample size calculation was performed using G*Power 3.1 software…”; “The calculated minimum sample size was 42 cases per group.”

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Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	P3, L149–152	"Chi-square tests were performed…"; "independent samples t tests were used…"; "paired t tests were used…"
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	P2, L66–69;P3, L149–152	"After matching, standardized mean difference (SMD) was used…"; "SPSS24.0 software was used for statistical analysis."
		(*b*) Describe any methods used to examine subgroups and interactions	N/A	N/A
		(*c*) Explain how missing data were addressed	N/A	N/A
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	N/A	N/A
		(*e*) Describe any sensitivity analyses		
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	P2, L64–71	"A total of 161 COPD patients… After propensity score matching (PSM, 1:1), a total of 96 patients were included."
		(b) Give reasons for non-participation at each stage	P2, L83–85	"Exclusion criteria: Patients who had received hormone therapy in the last month…"
		(c) Consider use of a flow diagram	N/A	N/A
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	P2, L72–73;P3, Table 1	"The clinical baseline data for the two groups of patients are shown in Table 1…"
		(b) Indicate number of participants with missing data for each variable of interest	N/A	N/A
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	P2, L96–101;P3, L132–133	"Both groups were treated for 7 days"; "daily ward rounds during the 7-day treatment period."

Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	N/A	N/A
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	P3–P7, L157–190	"Symptoms improved faster in the experimental group"; "The experimental group had better lung function after treatment"; "The blood gas function was better in the experimental group after treatment."
		Cross-sectional study—Report numbers of outcome events or summary measures	N/A	N/A
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	P3–P7, L157–190	"the RF correction time of the experimental group was (3.19±0.45) d"; "with higher levels in the experimental group"; "with no statistically significant difference compared with the control group."
		(*b*) Report category boundaries when continuous variables were categorized	P2, L76–80;P3, L127–128;P8, L242–245	"Patients (age: 60-75 years)…"; "$PaO_2 \geq 60$ mmHg, $PaCO_2 \leq 45$ mmHg"; "doses ≤ 40 mg/day are considered low-dose regimens."
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	P7, Table 2;L181–184	"The incidence of adverse reactions in the experimental group was 16.67%…"

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Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	N/A	N/A
Discussion				
Key results	18	Summarise key results with reference to study objectives	P7–P8, L207–219;P8, L242–247	"The results showed that the LD-MSS group had a shorter time to correction of respiratory failure…"
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	P8, L264–271	"This study has several limitations. First, it is a single-center study with a small sample size…"
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	P7–P9, L194–205;L207–214;L264–279	"This study explored the efficacy and safety of low-dose methylprednisolone sodium succinate…"; "The results showed…"; "This study has several limitations…"
Generalisability	21	Discuss the generalisability (external validity) of the study results	P7, L203–205;P8, L264–265	"This study fills the gap by providing clinical evidence…"; "it is a single-center study with a small sample size…"
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	P9, L288–289	"There was no 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.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.