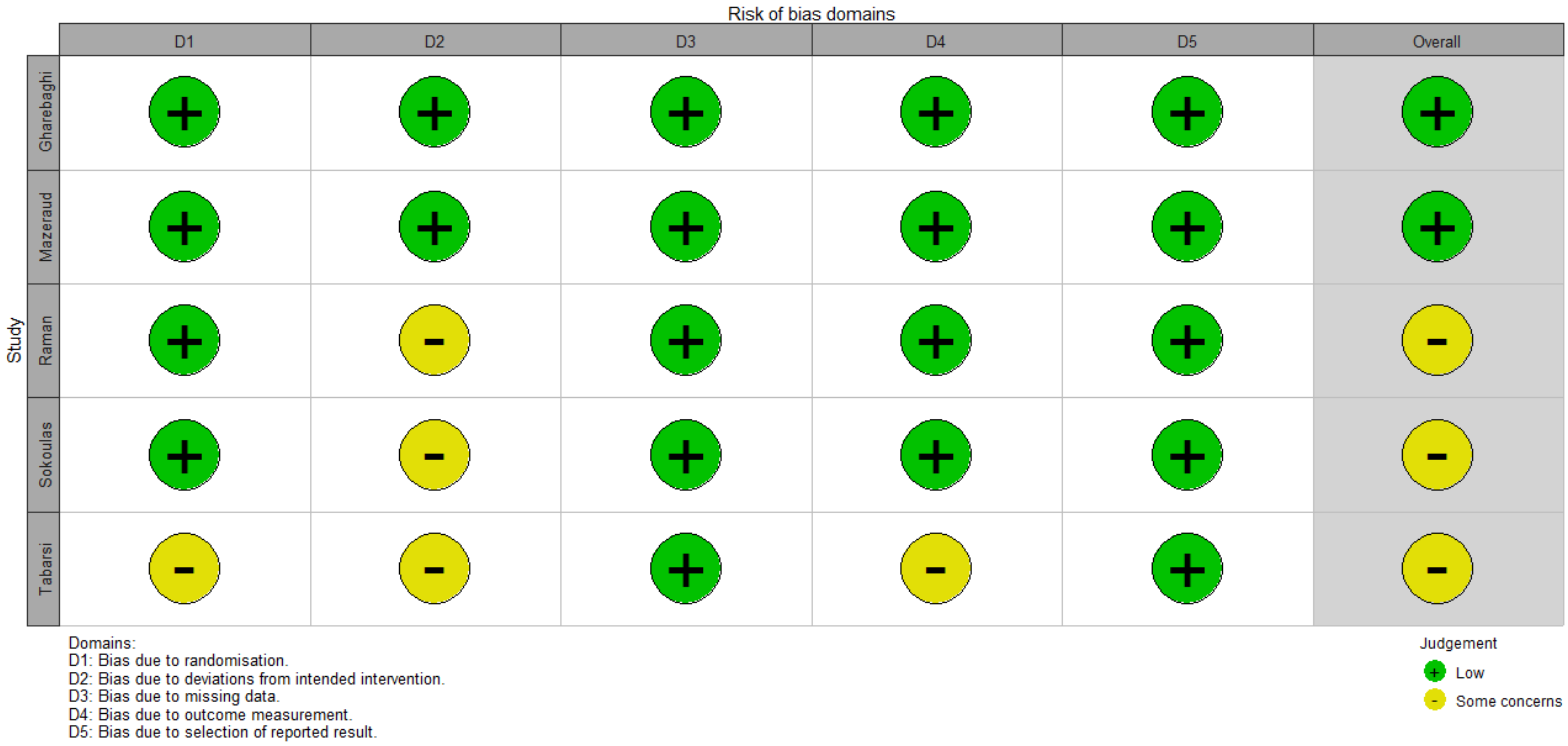
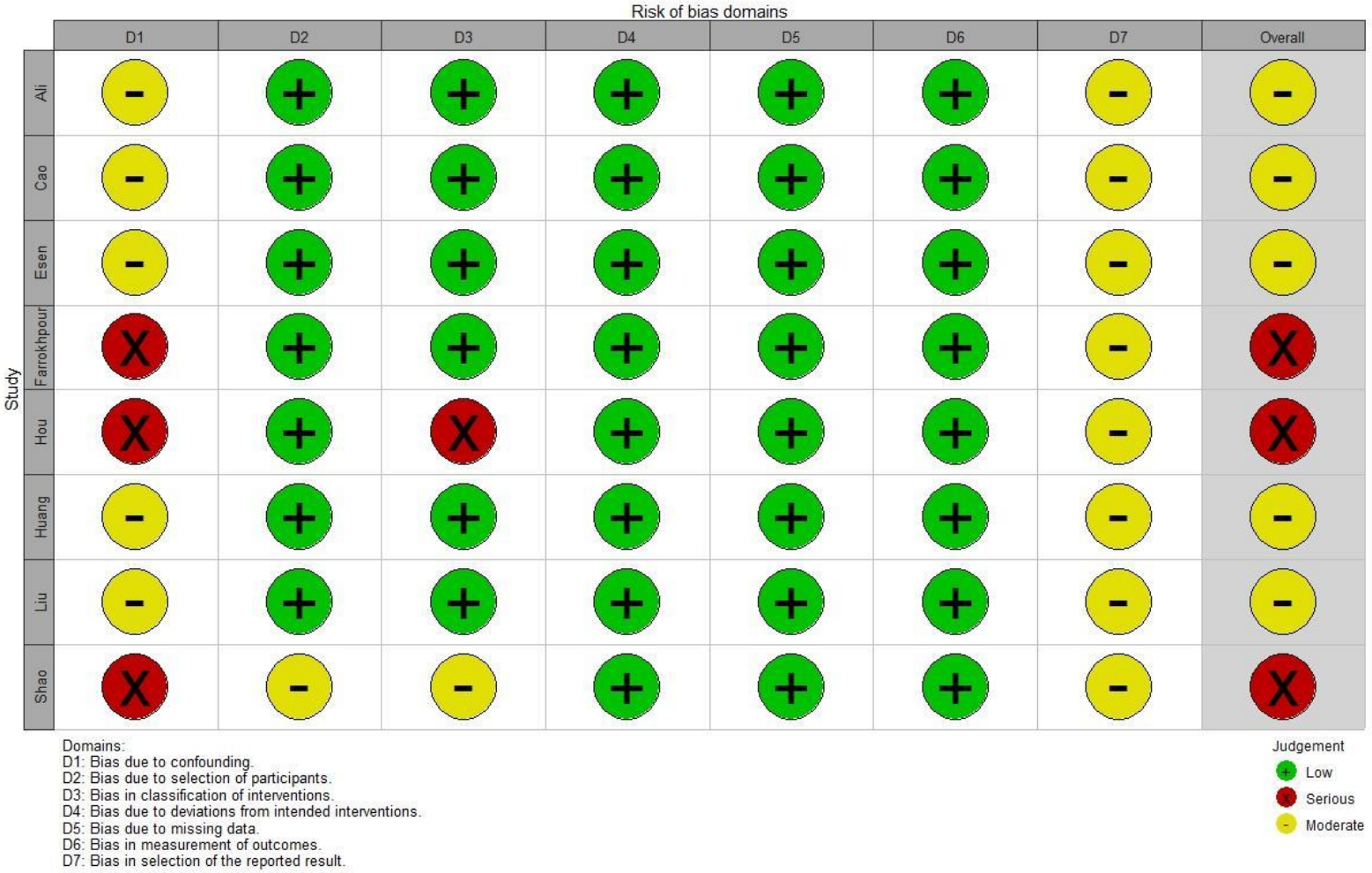
Supplement



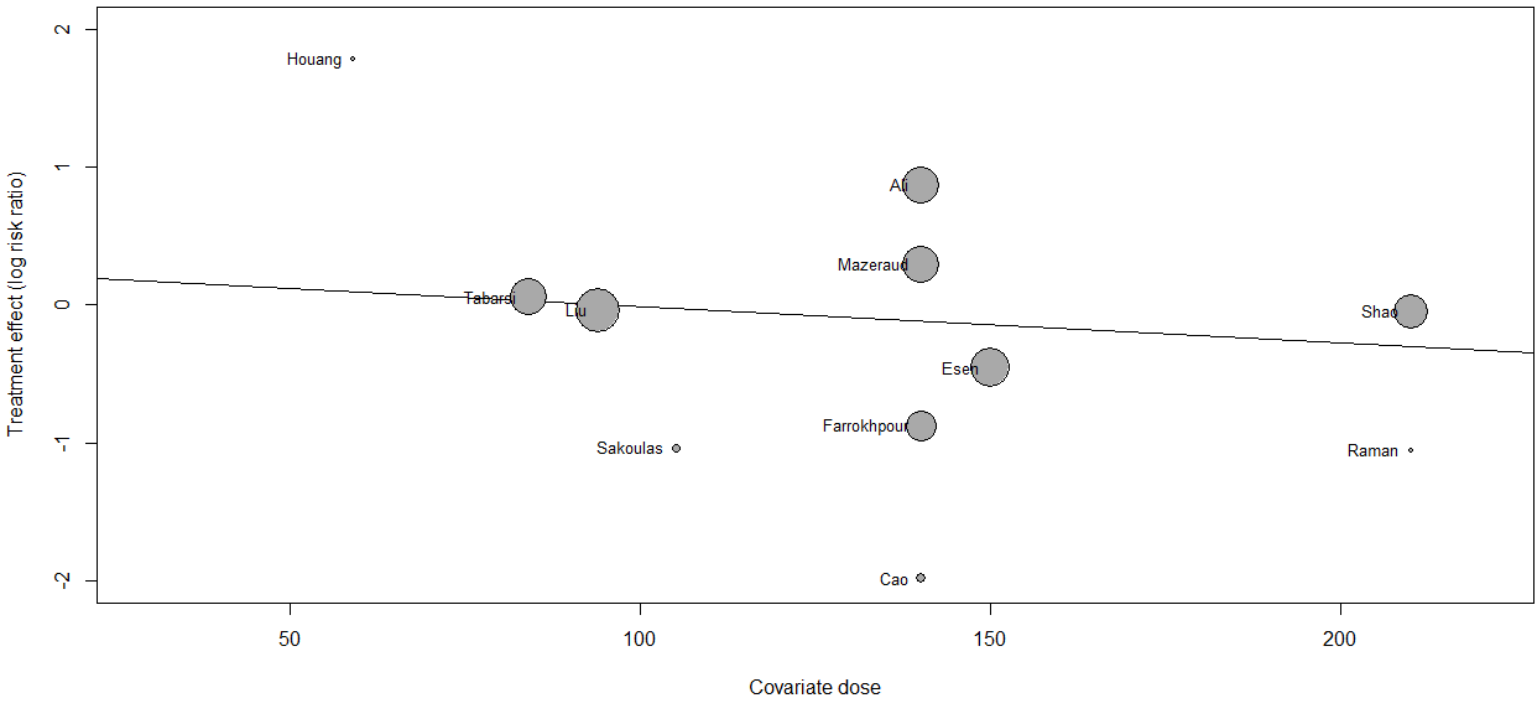
Supplement Figure 1. Traffic light plot of the RoB 2 risk of bias assessment



Supplement Figure 2. Traffic light plot of the ROBINS-I risk of bias assessment

Supplement Table 1. Data used in the meta-regression analysis

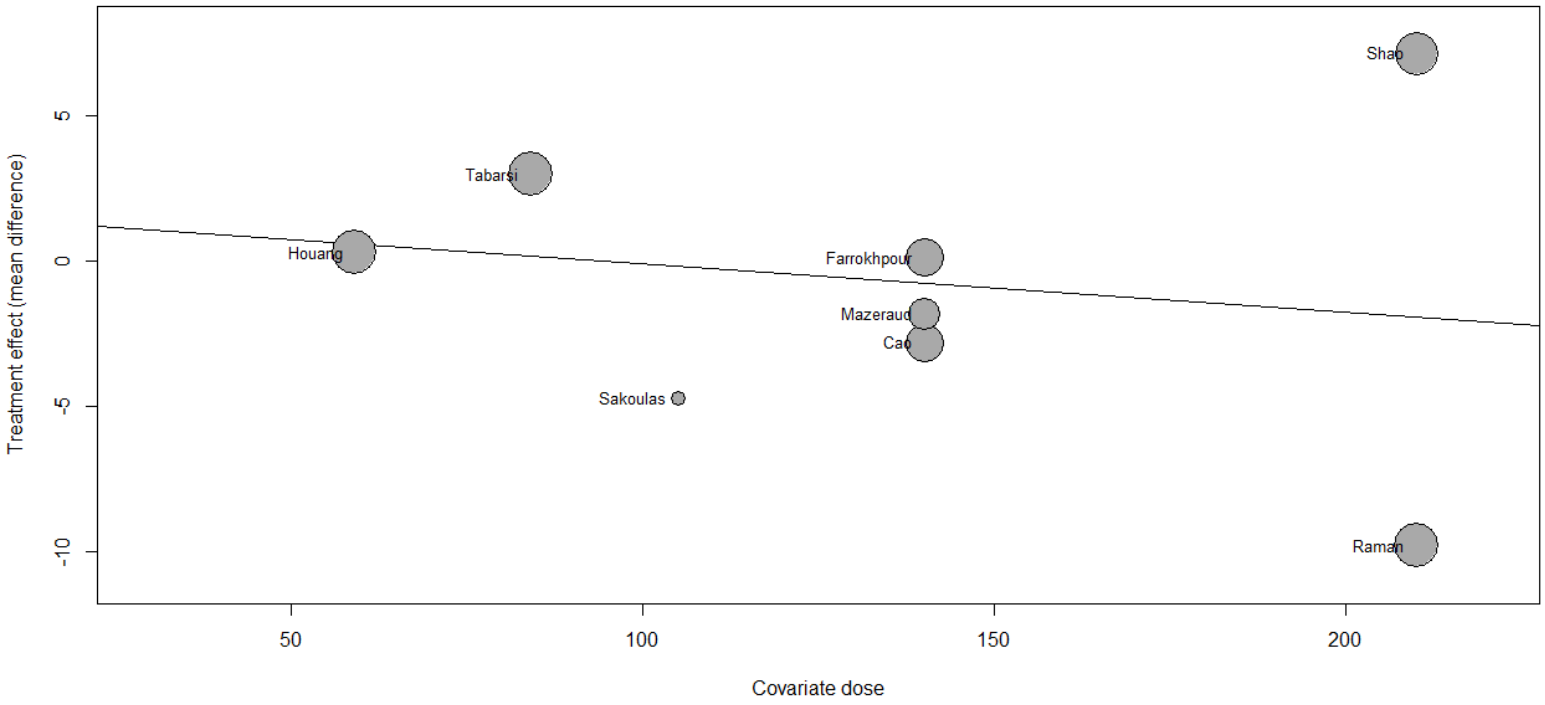
First author of the study	IVIg dose as stated in the study	Approximated total dose IVIg (g) for a 70kg person.	Comment regarding dose approximation	First month of study conduction / patient hospitalisation	Months since the start of the pandemic (taken as December 2019)
Ali	Minimum one dose of 0.4 g/kg, further doses were given on consecutive days, to a maximum of 5 doses	140	Maximum 5 doses were used in the approximation.	March 2020	4
Cao	2 g/kg, divided over 2–5 days.	140		February 2020	3
Esen	30 g/day for 5 consecutive days	150		March 2020	4
Farrokhpour	0.4 g/kg/d for 3 to 5 days	140		March 2020.	4
Gharebaghi	4 vials of 5 gm5 IVIg daily for three consecutive days		Uknown unit of IVIg dose	May 2020	6
Houang	(1) 10 g/day for 3 days, 8 patients; (2) 10 g/day for 5 days, 13 patients; (3) 20 g/day for 3 days, 16 patients; (4) 20 g/day for 5 days, 8 patients.	59	Mean dose per patient was calculated	January 2020	2
Hou	Not stated			January 2020	2
Liu	The median duration of IVIG treatment was 9.5 days, median doses were 9.85 g/day for survivors and 10.42 g/day for non-survivors.	94	Median dose of 9.85 g/d was used	November 2020	12
Mazeraud	2 g/kg divided into four perfusions of 0.5g/kg over 4 days.	140		April 2020	4
Shao	0.4 g/kg daily for 5 days	210		December 2019	1
Raman	The doses used differed among the different centres and physicians, ranging from 0.1 to 0.5 g/kg per day for infusion. The treatment period ranged from 5 to 15 days.	210	A mean dose of 0.3g/kg and mean treatment duration of 10 days was used.	July 2020	7
Sakoulas	0.5 g/kg daily for 3 days	105		May 2020	6
Tabarsi	0.4 g/kg daily for 3 days	84		September 2020	10



Supplement Figure 3. Bubble plot of meta-regression effect of total estimated dose on mortality outcome.

Meta-regression model results :

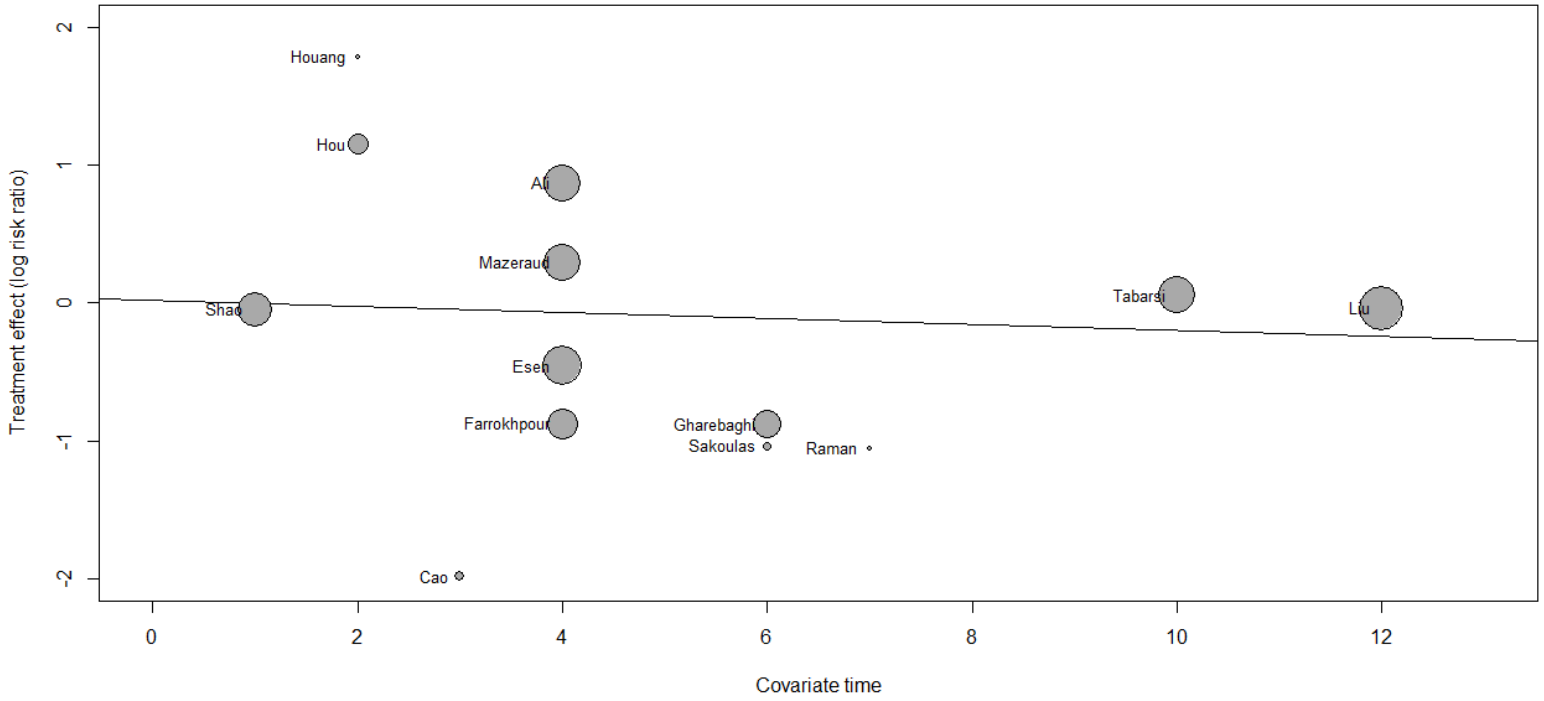
	estimate	se	zval	pval	ci.lb	ci.ub
intrcpt	0.2504	0.7597	0.3296	0.7417	-1.2387	1.7395
dose	-0.0026	0.0054	-0.4803	0.6310	-0.0133	0.0080



Supplement Figure 4. Bubble plot of meta-regression effect of total estimated dose on length of hospitalisation outcome

Meta-regression model results :

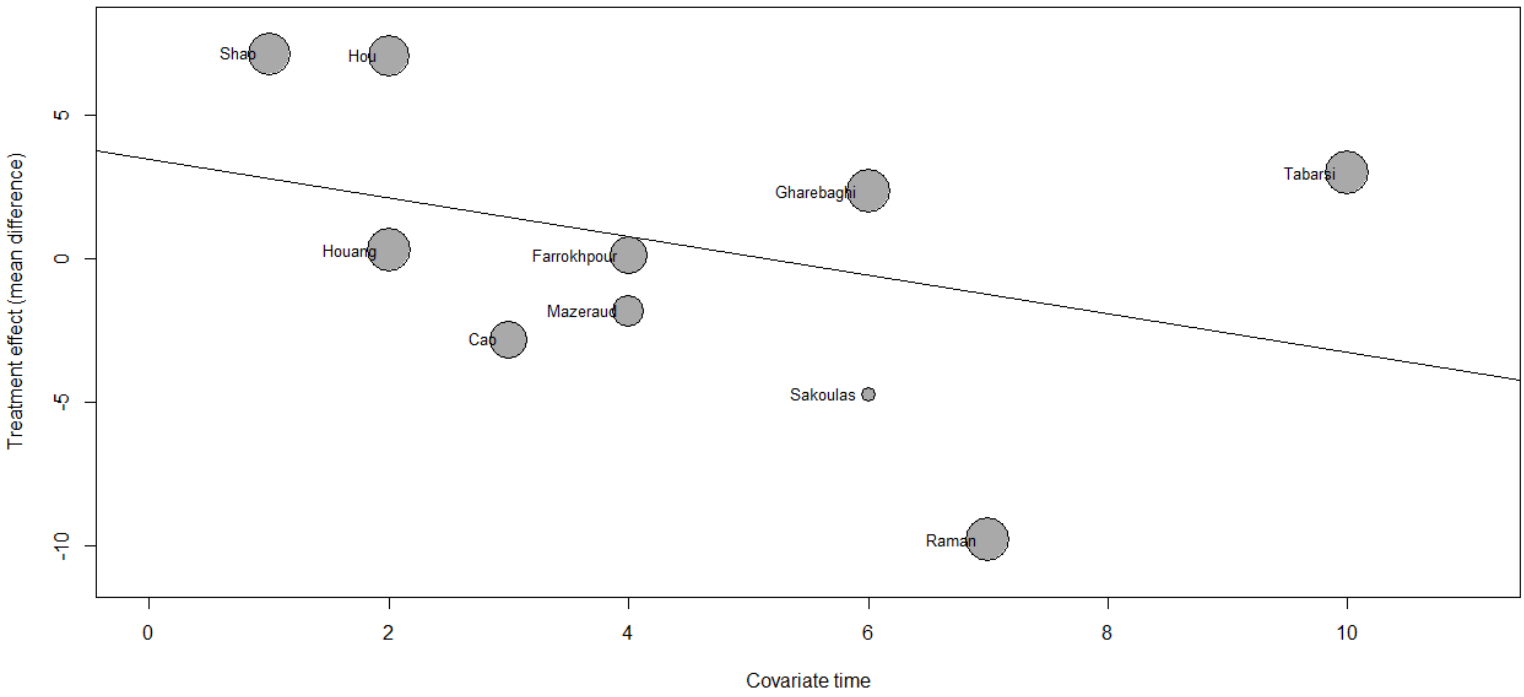
	estimate	se	zval	pval	ci.lb	ci.ub
intrcpt	1.5869	5.8986	0.2690	0.7879	-9.9741	13.1479
dose	-0.0167	0.0397	-0.4196	0.6748	-0.0946	0.0612



Supplement Figure 5. Bubble plot of meta-regression effect of time(months since the start of the pandemic) on mortality outcome

Meta-regression model results :

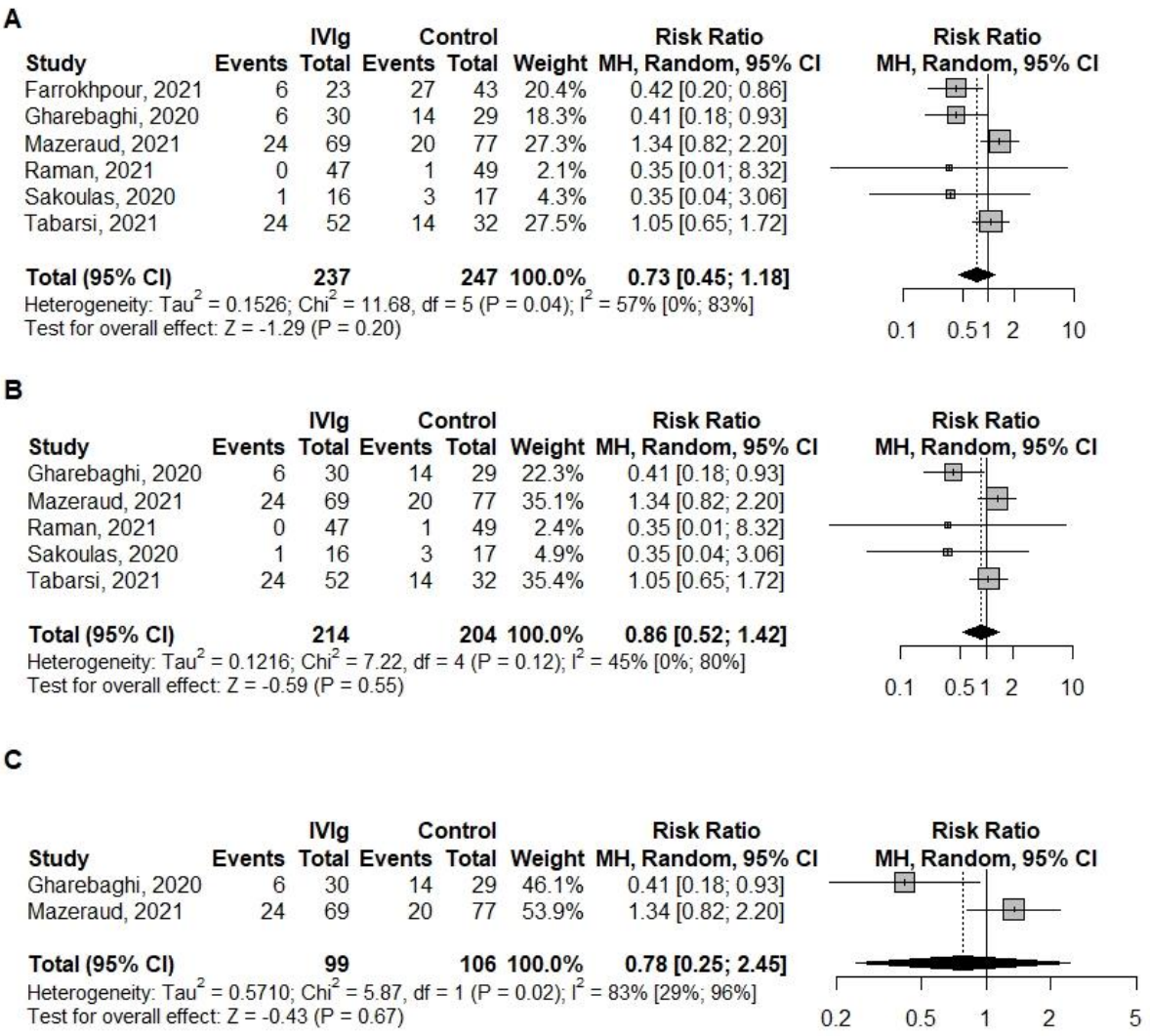
	estimate	se	zval	pval	ci.lb	ci.ub
intrcpt	0.0219	0.4043	0.0541	0.9569	-0.7706	0.8143
time	-0.0219	0.0632	-0.3474	0.7283	-0.1457	0.1018



Supplement Figure 6. Bubble plot of meta-regression effect of time(months since the start of the pandemic) on length of hospitalisation outcome

Meta-regression model results :

	estimate	se	zval	pval	ci.lb	ci.ub
intrcpt	3.4831	3.3401	1.0428	0.2970	-3.0634	10.0296
time	-0.6717	0.6380	-1.0528	0.2924	-1.9221	0.5788



Supplement Figure 7. Sensitivity analysis of the impact of the risk of bias on the meta-analysis results regarding prospective studies. **A** all prospective studies included in the meta-analysis, **B** meta-analysis with excluded studies with a serious risk of bias, **C** meta-analysis of only studies with a low risk of bias.

PRISMA 2020 checklist

Section and Topic	Item #	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	4
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	4
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	4
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	4
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	4
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	4
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	4
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	4
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	4
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	4
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	4
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	4

Section and Topic	Item #	Checklist item	Reported on page #
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	4
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	4
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	5
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	7
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	6 and flow diagram on Figure 1, page 16
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	6
Study characteristics	17	Cite each included study and present its characteristics.	6, Table 1 on page 14-15
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	Supplementary Figure 1 and 2 on pages 23 and 24
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	6
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	7
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	6
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	6, subgroup analysis and meta-regression
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	6, extensive subgroup analysis
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	7, funnel plots
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	7
DISCUSSION			

Section and Topic	Item #	Checklist item	Reported on page #
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	8
	23b	Discuss any limitations of the evidence included in the review.	9
	23c	Discuss any limitations of the review processes used.	9
	23d	Discuss implications of the results for practice, policy, and future research.	8-9
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	9
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	9
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	9
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	1
Competing interests	26	Declare any competing interests of review authors.	1
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	All data extracted and used in the analysis can be found in the manuscript.