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Supplementary Materials

Bloodstream Isolation of *Klebsiella pneumoniae* in Adults Hospitalized with SARS-CoV-2 during the Omicron BA.5 Wave

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Supplementary Methods S1. Operational Definitions and Analytic Decisions

Element	Prespecified definition or decision
Study population	Consecutive adults hospitalized with laboratory-confirmed SARS-CoV-2 infection between 12 July and 25 September 2022; *N* = 395.
Primary exposure	*Klebsiella pneumoniae* explicitly identified in the recorded blood-culture result.
Primary comparator	All patients without confirmed *K. pneumoniae*, including patients with no growth and patients with another identified bloodstream pathogen.
Descriptive culture groups	No growth, another identified pathogen, and confirmed *K. pneumoniae*.
Primary outcome	Hospital length of stay, analyzed continuously and as prolonged hospitalization of at least 14 days.
Secondary outcome	In-hospital death derived from recorded discharge status.
Primary comparisons	Two-sided Mann–Whitney U test for continuous variables and Fisher's exact test for categorical variables.
Adjusted analysis	Logistic regression for hospitalization of at least 14 days, adjusted for age per 10 years, sex, and admission SpO_2 per 5 percentage points; covariates were selected on clinical grounds before between-group differences were examined. All logistic models were fitted using Firth's penalized likelihood (primary estimates, with profile penalized-likelihood CIs and p values); maximum-likelihood estimates from the original analysis are reported for comparison.
Exposure safeguard	An algorithm-supported culture-negative flag contained in the study database was not used to define confirmed *K. pneumoniae* because its components included clinical variables and length of stay, creating incorporation bias and circular inference.
Mortality modeling	Because only one death occurred among the 16 patients with confirmed *K. pneumoniae*, a maximum-likelihood mortality model was not fitted. An exploratory Firth model adjusted for age and sex is reported for completeness only and was not used for inference.
Multiple comparisons	Holm-adjusted p values were calculated across the 17 baseline and clinical between-group comparisons (length of stay, the primary outcome, was excluded from this family). Unadjusted p values below 0.05 that did not remain significant after correction were regarded as hypothesis-generating only.
Post hoc sensitivity analysis	The primary Firth model was refitted with current smoking added to the prespecified covariates (390 patients with recorded smoking status), because smoking differed nominally between groups but involved a single exposed smoker.

Table S1. Distribution of Blood-Culture Findings and Clinical Outcomes

Blood-culture finding	***n***	**% of cohort (*N* = 395)**	**% of positive cultures (*n* = 89)**	**Stay ≥14 days, *n* (%; 95% CI)**	**In-hospital death, *n* (%; 95% CI)**
No growth	306	77.5	—	83 (27.1; 22.4–32.4)	44 (14.4; 10.9–18.8)
Other identified pathogen	73	18.5	82.0	23 (31.5; 22.0–42.9)	17 (23.3; 15.1–34.2)
Streptococcus pneumoniae	18	4.6	20.2	—	—
Enterococcus faecalis	16	4.1	18.0	—	—
Staphylococcus aureus	13	3.3	14.6	—	—
Escherichia coli	13	3.3	14.6	—	—
Pseudomonas aeruginosa	13	3.3	14.6	—	—
Klebsiella pneumoniae	16	4.1	18.0	9 (56.3; 33.2–76.9)	1 (6.3; 1.1–28.3)
Total cohort	395	100.0	—	115 (29.1; 24.9–33.8)	62 (15.7; 12.4–19.6)

Each patient was assigned to one blood-culture group. Outcomes are shown at the blood-culture-group level; the five organisms in the other-pathogen group are listed for descriptive purposes. Percentages of positive cultures refer to the 89 patients with any identified bloodstream pathogen. 95% confidence intervals for proportions were calculated using the Wilson score method. CI, confidence interval.

Table S2. Sensitivity Comparison with Other Pathogens

Outcome	**Confirmed *K. pneumoniae* (*n* = 16)**	**Other pathogen (*n* = 73)**	***p* value**
Length of stay, median (IQR), days	17.5 (9.8–25.2)	10.0 (5.0–16.0)	0.012
Hospitalization ≥14 days, *n* (%)	9 (56.3)	23 (31.5)	0.085

Continuous data were compared using the two-sided Mann–Whitney U test; categorical data were compared using Fisher's exact test. IQR, interquartile range.

Supplementary Reporting Checklist STROBE Cohort Study

Item	**Reporting recommendation**	**Location in manuscript**
1	Title and abstract identify the observational design and provide a balanced summary.	Title; Abstract
2	Scientific background and rationale are explained.	Introduction, paragraphs 1–4
3	Objectives and prespecified hypothesis are stated.	Introduction, final paragraph
4	Key design features are presented early.	Section 2.1
5	Setting, location, and study dates are reported.	Section 2.1
6	Eligibility criteria and cohort inclusion are reported.	Section 2.2; Figure 1

Item	Reporting recommendation	Location in manuscript
7	Exposure, outcomes, covariates, and diagnostic criteria are defined.	Sections 2.3–2.5; Supplementary Methods S1
8	Data sources and measurement limitations are described.	Sections 2.4–2.5
9	Potential sources of bias are identified.	Sections 2.3 and 4.5
10	The available cohort and event counts determine the study size.	Sections 2.2 and 2.6
11	Quantitative variables and analytical scaling are explained.	Section 2.6
12	Statistical methods, confounding control, missing-data handling, and sensitivity comparison are reported.	Section 2.6; Table 2; Table S2
13	Numbers included in each culture group are reported.	Section 3.1; Figures 1 and 4; Table S1
14	Participant characteristics and missing-data information are reported.	Table 1 and footnote
15	Outcome events are reported by culture group.	Sections 3.3–3.4; Table 3; Table S1
16	Unadjusted and adjusted estimates with precision are reported.	Sections 3.3–3.4; Table 2; Figure 3
17	The prespecified comparison with other pathogens is reported.	Section 3.3; Table S2
18	Principal findings are summarized in relation to the objectives.	Section 4.1
19	Study limitations, direction of bias, and imprecision are discussed.	Section 4.5
20	Interpretation is cautious and considers multiplicity and external evidence.	Sections 4.1–4.3
21	Generalizability is addressed.	Sections 4.2 and 4.5
22	Funding and sponsor role are disclosed.	Funding statement

This checklist is provided to facilitate editorial assessment of reporting completeness. It does not alter the observational design or the limitations described in the main manuscript.