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Clinical Characteristics of Staphylococcus lugdunensis Bacteremia: A 12-Year Multicenter Comparative Study with Staphylococcus aureus and Coagulase-Negative Staphylococcal Bacteremia

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Abstract

Objectives:

Staphylococcus lugdunensis bacteremia (SLB) has been increasingly recognized as a potentially invasive infection, but its clinical characteristics remain unclear in comparison with *Staphylococcus aureus* bacteremia (SAB) and other coagulase-negative staphylococci (CoNS) bacteremia.

Methods:

We performed a multicenter retrospective study across four Japanese hospitals, including adults with SLB (2013–2024), SAB, and CoNS bacteremia (2022). Infective endocarditis (IE), distant infectious foci, and 30-day mortality were compared.

Results:

A total of 32 SLB, 47 CoNS, and 105 SAB cases were analyzed. The composite endpoint of IE or distant infectious foci was significantly more frequent in SLB than in CoNS bacteremia (37.5% vs 4.2%, $p < 0.01$), but did not differ between SLB and SAB (37.5% vs 27.6%, $p = 0.38$). IE was more frequent in SLB (15.6%) than in CoNS bacteremia (0%, $p < 0.01$) and SAB (1.0%, $p < 0.01$). Distant infectious foci were also more common in SLB than in CoNS bacteremia (15.6% vs 2.1%, $p = 0.04$), but were comparable between SLB and SAB (15.6% vs 21.0%, $p = 0.62$). Thirty-day mortality did not differ significantly (3.1%, 6.4%, and 9.5%, respectively; log-rank $p = 0.45$).

Conclusions:

SLB is distinct from other CoNS bacteremia and shows invasiveness comparable to SAB. SLB should be managed similarly to SAB and not dismissed as contamination without careful evaluation.

Introduction

Staphylococcus species are common commensals of the skin and are classified into *Staphylococcus aureus* and coagulase-negative staphylococci (CoNS) based on their ability to produce coagulase, an enzyme that converts plasma fibrinogen to fibrin and induces coagulation [1–3]. Because of its diverse array of virulence factors [4, 5], *S. aureus* frequently causes serious complications especially when it develops bacteremia (SAB: *S. aureus* bacteremia), infective endocarditis (IE), pyogenic spondylitis, and deep-seated abscesses [6, 7]. Extant literature underscores the significant burden of SAB, with reported in-hospital mortality rates as high as 14.9–21.5% in patients with SAB [8]. While a single positive blood culture set is generally considered clinically significant for *S. aureus*, approximately 46–98% of single-set positive cultures for CoNS represent contamination [9, 10]. This general perception may lead to the

under-recognition and subsequent undertreatment of clinically significant CoNS bacteremia, even though the incidence of metastatic infection and mortality remains substantially lower than that observed in SAB [11].

Nevertheless, among various subspecies of CoNS strains, *Staphylococcus lugdunensis* expresses virulence factors such as fibrinogen-binding proteins [12], von Willebrand factor–binding activity [13], and cytotoxic peptides [14, 15], resulting in a clinical presentation that more closely resembles *S. aureus* than other CoNS, with higher frequencies of IE, metastatic infections, and mortality [11]. Importantly, *S. lugdunensis* bacteremia (SLB) may be misinterpreted as contamination in various clinical settings, potentially delaying appropriate management. Given that management strategies differ substantially between SAB and CoNS bacteremia, accurate identification of clinically significant pathogens is crucial.

To date, few single-center studies have directly compared the clinical characteristics of SLB with SAB and other CoNS bacteremia, and no multicenter studies have been reported. To address this gap, we conducted a multicenter retrospective study across five institutions in Japan to clarify the clinical features of SLB.

Methods

Study design and settings

This multicenter retrospective study was conducted at five hospitals located in Okayama and Hiroshima Prefecture, Japan. Clinical and microbiological data of patients diagnosed with SAB, SLB, or CoNS bacteremia were extracted from electronic medical records using a standardized protocol. The study period was from January 1 to December 31, 2022, for SAB and CoNS bacteremia (one year), and from January 2013 to December 2024 for SLB (12 years). Because SLB is a relatively rare entity, we adopted a longer study period to ensure an adequate number of cases for meaningful analysis. In contrast, the study period for SAB and CoNS bacteremia was limited to a single calendar year (2022) to align with the data collection period used in a prior multicenter study, thereby ensuring comparability of incidence and clinical characteristics across institutions [16]. This approach allowed us to maximize case accrual for SLB while maintaining methodological consistency for SAB and CoNS.

Eligibility criteria

Patients were eligible for inclusion if they were aged 18 years or older. Eligible cases included those with at least one blood culture positive for *S. aureus* or *S. lugdunensis*. In addition, patients with two or more blood culture sets positive for CoNS were included. Exclusion criteria were as follows: (1) cases judged to represent contamination by the treating physician; (2) patients who were discharged or transferred within three days of diagnosis; (3) cases lacking detailed clinical data; (4) polymicrobial bacteremia; and (5) recurrent episodes occurring within 3 months in the same patient.

Definitions

SAB and SLB were defined by the isolation of *S. aureus* or *S. lugdunensis* from at least one blood culture. CoNS bacteremia was defined by the isolation of other coagulase-negative staphylococci from at least two separate blood culture sets. Because of the retrospective design, contamination was defined operationally as cases in which the treating physician explicitly documented contamination in the medical record or no antibiotic therapy was initiated. Nosocomial cases were classified as those occurring 48 hours or more after hospital admission. Collected data included demographics, comorbidities (e.g., malignancy, diabetes mellitus, immunosuppressive therapy, chemotherapy, heart valve disease, and renal dysfunction defined as an estimated glomerular filtration rate [eGFR] < 30 mL/min/1.73 m²), and the presence of indwelling devices (e.g., central venous catheter, peripheral catheter, prosthetic valve, other intracardiac devices, and orthopedic devices). In addition, we collected data on diagnostic evaluations for infectious foci (computed tomography [CT], magnetic resonance imaging [MRI], transthoracic echocardiography [TTE], and transesophageal echocardiography [TEE]), the presence of complications (e.g., IE and distant infectious foci), duration of antimicrobial therapy, infectious diseases (ID) consultation, and 30-day all-cause mortality. Distant infectious foci were defined as sites of infection identified by imaging studies (e.g., CT or MRI), without distinguishing between primary and hematogenous spread. Microbiological data included the number of blood culture sets obtained, the number of positive blood culture sets, whether follow-up blood cultures were performed, and the proportion of methicillin-resistant isolates.

Outcome measures and statistical analysis

Outcome measures and statistical analysis

The primary outcome was the composite incidences of infective endocarditis and distant infectious foci. The secondary outcomes was 7-day and 30-day all-cause mortality. As a sensitivity analysis, cases initially classified as contamination were additionally included in the analyses of 30-day mortality. Continuous variables are presented as median (interquartile range [IQR]), and categorical variables as counts (percentages). Baseline characteristics were analyzed using the Kruskal-Wallis test for continuous variables and either the chi-square test or Fisher's exact test for categorical variables, as appropriate. When overall comparisons among the three groups yielded a p value < 0.05, pairwise analyses were conducted between SLB vs. SAB and SLB vs. CoNS bacteremia. Categorical variables were compared using Pearson's chi-square or Fisher's exact test, as appropriate. Kaplan–Meier survival curves with log-rank tests were employed to evaluate differences in 30-day survival across the three groups. Two-sided p values of < 0.05 were considered statistically significant. All statistical analyses were conducted using EZR, a graphical user interface for R (version 3.5.2).

Ethics approval

This study was performed in accordance with the principles of the Declaration of Helsinki (1975, as revised in 2008) and received approval from the Institutional Review Board of Okayama University (Approval No. 2302-027). Owing to its retrospective design, informed consent was obtained via an opt-out approach in accordance with institutional policies.

Results

During the study period (2013–2024), 55 cases of *S. lugdunensis* bacteremia were identified. Of these, 23 cases were excluded, including 15 cases judged as contamination by the treating physician, 4 cases involving patient transfer, and 4 cases of polymicrobial bacteremia, leaving 32 cases for the analysis (Fig. 1). For comparison, 105 cases of S. aureus bacteremia and 47 cases of other CoNS bacteremia were eligible for the analysis.

The baseline characteristics are summarized in Table 1. The median age was 71 years (IQR, 56–81) in the SLB group, 72 years (IQR, 60–77) in the CoNS group, and 78 years (IQR, 66–86) in the SAB group, with no substantial difference in sex distribution. Nosocomial onset was significantly more frequent in the CoNS group than in the SLB group (34.4% vs. 80.9%; $p < 0.01$). With regard to underlying conditions, the prevalence of malignancy and immunosuppressive therapy differed significantly among the three groups (malignancy: 34.4% vs 46.8% vs 24.8%, $p = 0.03$; immunosuppressive therapy: 9.4% vs 29.8% vs 11.4%, $p = 0.01$); however, no significant differences were observed in pairwise comparisons involving SLB (malignancy: SLB vs CoNS, $p = 0.35$; SLB vs SAB, $p = 0.36$; immunosuppressive therapy: SLB vs CoNS, $p = 0.05$; SLB vs SAB, $p = 1.00$).In terms of device-related factors, central venous catheters (18.8% vs. 68.1%) and peripheral catheters (34.4% vs. 70.2%) were significantly less common in SLB than in CoNS, whereas their prevalence was comparable between SLB and SAB. In contrast, prosthetic valves and other intracardiac devices were more frequently observed in the SLB group (21.9%). The proportion of methicillin resistance was significantly lower in SLB (31.3%) than in CoNS (61.7%) and was comparable to that in SAB (27.6%).

Table 1

Baseline characteristics of patients with *Staphylococcus lugdunensis* bacteremia (SLB), *Staphylococcus aureus* bacteremia (SAB), and other coagulase-negative staphylococcal (CoNS) bacteremia

	SLB (N = 32)	Other CoNS* (N = 47)	SAB (N = 105)	*p* value among three groups	*p* value SLB—CoNS	*p* value SLB—SAB
Age, years (Median [IQR])	**71 [56–81]**	**72 [60–77]**	**78 [66–86]**	**0.03**	**0.91**	**0.07**
Sex, male, N (%)	19 (59.4%)	30 (63.8%)	71 (67.6%)	0.65	—	—
In-hospital onset, N (%)	11 (34.4%)	38 (80.9%)	54 (51.4%)	< 0.01	< 0.01	0.11
Background condition, N (%)	11 (34.4%)	22 (46.8%)	26 (24.8%)	0.03	0.35	0.36
— Malignancy	6 (18.8%)	11 (23.4%)	26 (24.8%)	0.84	—	—
— Diabetes mellitus	3 (9.4%)	14 (29.8%)	12 (11.4%)	0.01	0.05	1
— Immunosuppressive therapy	6 (18.8%)	11 (23.4%)	12 (11.4%)	0.15	—	—
— Chemotherapy	6 (18.8%)	9 (19.1%)	31 (29.5%)	0.28	—	—
— Valve disease	4 (12.5%)	6 (12.8%)	12 (11.4%)	0.95	—	—
— Chronic kidney disease						
— Hemodialysis	1 (3.1%)	3 (6.4%)	4 (3.8%)	0.79	—	—
Artifact, N (%)	6 (18.8%)	32 (68.1%)	28 (26.7%)	< 0.01		
— CV catheter	11 (34.4%)	33 (70.2%)	37 (35.2%)	< 0.01	< 0.01	0.49
— Peripheral catheter	7 (21.9%)	2 (4.3%)	2 (1.9%)	< 0.01	< 0.01	1
— Prosthetic valve	9 (28.1%)	1 (2.1%)	8 (7.6%)	< 0.01	0.03	< 0.01
— Other intra cardiac device	0 (0%)	3 (6.4%)	3 (2.9%)	0.38	< 0.01	< 0.01
— Orthopedic device					—	—
Blood culture	2 [2–2]	2 [2–2]	2 [2–2]	—	—	—

Abbreviations: CV catheter, central venous catheter. IQR, interquartile range.

Other CNS comprised *Staphylococcus epidermidis* (n = 34) and other coagulase-negative staphylococci (n = 13).

Age, years (Median [IQR])	**SLB (N = 32)**	**Other CoNS* (N = 47)**	**SAB (N = 105)**	***p* value among three groups**	***p* value SLB—CoNS**	***p* value SLB—SAB**
	71 [56–81]	**72 [60–77]**	**78 [66–86]**	**0.03**	**0.91**	**0.07**
— submit, (Median [IQR])	2 [1–2]	2 [2–2]	2 [1–2]	—	—	—
— positive, (Median [IQR])	23 (71.9%)	33 (70.2%)	89 (84.8%)	0.07	—	—
— Follow blood culture, N (%)	10 (31.3%)	29 (61.7%)	29 (27.6%)	< 0.01	0.01	0.82
— Methicillin resistant, N (%)						

Abbreviations: CV catheter, central venous catheter. IQR, interquartile range.

Other CNS comprised *Staphylococcus epidermidis* (n = 34) and other coagulase-negative staphylococci (n = 13).

Involvement of infective endocarditis and distant infectious foci is summarized in Table 2. The frequency of CT or MRI did not differ significantly among groups (SLB 78.1%, CoNS 68.1%, SAB 77.1%; $p = 0.46$), nor did the use of TTE (65.6%, 61.7%, and 72.4%, respectively; $p = 0.39$). In contrast, TEE was performed more frequently in SLB (21.9%) than in CoNS (2.1%) and at a similar rate to SAB (13.3%). Presence of distant infectious foci without IE were identified in 5 of 32 patients with SLB (15.6%), 1 of 47 patients with CoNS bacteremia (2.1%), and 22 of 105 patients with SAB (21.0%). The frequency was significantly higher in SLB than in CoNS bacteremia ($p = 0.04$), but did not differ from SAB ($p = 0.62$). IE alone was observed in 5 of 32 patients with SLB (15.6%), whereas no cases were identified in CoNS bacteremia, and only 1 case was observed in SAB (1.0%). The rate was significantly higher in SLB than in both CoNS bacteremia and SAB (both $p < 0.01$). Concurrent IE and distant infectious foci were identified in 2 of 32 patients with SLB (6.3%), 1 of 47 patients with CoNS bacteremia (2.1%), and 6 of 105 patients with SAB (5.7%). Regarding the composite endpoint of IE or distant infectious foci, the incidence was significantly higher in the SLB group (37.5%; 12/32) than in the CoNS bacteremia group (4.2%; 2/47). Notably, this rate even surpassed that observed in the SAB group (27.6%; 29/105: $p = 0.38$). The detailed distribution of IE and distant infectious foci is provided in **Supplementary Table 1**.

Table 2
Diagnostic evaluation and distant infectious foci

Diagnostic evaluation, N (%)	**SLB (N = 32)**	**Other CoNS (N = 47)**	**SAB (N = 105)**	***p* value among three groups**	***p* value SLB — CoNS**	***p* value SLB — SAB**
— CT or MRI						
— Transthoracic echocardiography (TTE)	**25 (78.1%)**	**32 (68.1%)**	**81 (77.1%)**	**0.46**	**—**	**—**
— Transesophageal echocardiography (TEE)	**21 (65.6%)**	**29 (61.7%)**	**76 (72.4%)**	**0.39**	**—**	**—**
	7 (21.9%)	**1 (2.1%)**	**14 (13.3%)**	**0.01**	**< 0.01**	**0.27**
Complications, N (%)	5 (15.6%)	1 (2.1%)	22 (21.0%)	< 0.01	0.04	0.62
— Distant infectious foci* only	5 (15.6%)	0 (0%)	1 (1.0%)	< 0.01	< 0.01	< 0.01
— Infective endocarditis only	2 (6.3%)	1 (2.1%)	6 (5.7%)	0.64	0.56	1
— Both distant infectious foci and infective endocarditis	12 (37.5%)	2 (4.2%)	29 (27.6%)	< 0.01	< 0.01	0.38
— Composite endpoint: infective endocarditis or distant infectious foci						

Abbreviations: CT, computed tomography. MRI, magnetic resonance imaging.

*Distant infectious foci were defined as sites of infection identified by imaging studies (e.g., CT or MRI), without distinguishing between primary and hematogenous spread.

Patient management and clinical outcomes are summarized in Table 3. Antimicrobial therapy was initiated within 24 hours in nearly all cases (SLB 100%, CoNS 87.2%, SAB 99.0%). The median duration of therapy was 14 days (IQR, 9–57) for SLB, 14 days (IQR, 8–16) for CoNS bacteremia, and 20 days (IQR, 14–40) for SAB. ID consultation was performed in 31.3% of SLB cases, compared with 12.5% in CoNS bacteremia and 25.7% in SAB. Seven-day mortality was low across all groups (SLB 0%, CoNS 2.1%, SAB 3.8%). Similarly, 30-day mortality did not differ significantly among the three groups (SLB 3.1%, CoNS 6.4%, SAB 9.5%; log-rank $p = 0.45$) (Fig. 2). Pairwise comparisons also showed no significant differences between SLB and CoNS bacteremia ($p = 0.51$) or between SLB and SAB ($p = 0.24$). In a sensitivity analysis including cases initially classified as contamination in the SLB group, the 30-day mortality rates were 4.3% for SLB, with no significant difference among the groups (log-rank $p = 0.48$). No significant association was observed between ID consultation and 30-day mortality in any group or in the overall cohort (**Supplementary Table 2**).

Table 3
Clinical management and patient outcomes

Clinical management	**SLB**	**Other CoNS**	**SAB**	***p* value**	***p* value**	***p* value**
— Antibiotics within 24h after blood culture positivity, N (%)	**(N = 32)**	**(N = 47)**	**(N = 105)**	**among three groups**	**SLB — CoNS**	**SLB — SAB**
—Duration of antibiotic therapy, days (Median [IQR])	**32 (100%)**	**41 (87.2%)**	**104 (99.0%)**	**< 0.01**	**0.08**	**1**
— Infectious diseases consultation, N (%)	**14 [9–57]**	**14 [8–16]**	**20 [14–40]**	**< 0.01**	**0.08**	**0.44**
	10 (31.3%)	**15 (12.5%)**	**29 (25.7%)**	**0.86**	**—**	**—**
Clinical outcome	0 (0%)	1 (2.1%)	4 (3.8%)	0.50	0.41	0.27
— 7-day all-cause mortality, N (%)	1 (3.1%)	3 (6.4%)	10 (9.5%)	0.45	0.51	0.24
— 30-day all-cause mortality, N (%)						

Abbreviations: IQR, interquartile range.

Discussion

In this study, we compared the clinical characteristics and outcomes of SLB with those of other CoNS bacteremia and SAB. Patients with SLB exhibited a markedly elevated risk of IE and disseminated infectious complications relative to those with CoNS bacteremia, underscoring the inherently aggressive nature of SLB infections. In contrast, the frequency of distant infectious foci and the composite endpoint of IE or distant infection were comparable between the SLB and SAB groups, with no significant differences observed. Despite comparable 30-day survival rates across the three cohorts, these data suggest that SLB should not be conflated with other CoNS. Rather, it must be addressed as a high-risk pathogen whose clinical virulence parallels that of SAB.

The invasive nature of SLB is consistent with the distinct virulence mechanisms of *S. lugdunensis* compared with other CoNS. *S. lugdunensis* shares partial genetic homology with *S. aureus* [17] and possesses several virulence factors that are uncommon among other CoNS. Key factors include the SLUSH peptide, the fibrinogen-binding protein Fbl, and the metalloprotease lugdulysin [14, 18]. SLUSH peptide exhibits not only hemolytic activity against human erythrocytes but also potent immunomodulatory effects [19]. Fbl is thought to facilitate adhesion to damaged endothelium and prosthetic materials and to contribute to the early stages of vegetation formation in IE [12]. Lugdulysin, although not fully characterized, has been implicated in survival in whole blood and evasion of macrophage-mediated killing and is more frequently detected in isolates from deep-seated infections and prosthetic joint infections [18, 20]. Furthermore, unlike other CoNS strains, *S. lugdunensis* has been

shown to bind directly to von Willebrand factor under shear stress, enabling adherence to vascular endothelium and valvular tissue, which may explain its propensity to cause IE [13]. These virulence characteristics may provide a biological basis for the high rates of IE and distant infectious foci observed in SLB in our study.

Previous studies have reported that approximately 15% of SLB cases are complicated by IE [21]. In addition, *S. lugdunensis* has been identified as an independent predictor of IE in CoNS bacteremia (adjusted odds ratio 2.99, 95% CI 1.06–8.43), further supporting its distinct clinical behavior [22]. Another Japanese study has also demonstrated that SLB is associated with higher rates of IE and metastatic infection compared with other CoNS bacteremia, exhibiting a degree of invasiveness comparable to SAB [11]. Consistent with these findings, our results indicate that SLB is clearly more pathogenic than other CoNS bacteremia and warrants at least the same level of clinical attention as SAB. Although reported 30-day mortality rates for SLB range from 7% to 15% [11, 23], IE-complicated cases are often associated with profound valvular destruction and require surgical management [24], leading to worse outcomes [25]. However, no significant differences in 30-day mortality were observed. This may be explained by the small sample size, low event rates, and differences in management. Notably, the low mortality observed in the SLB group remained unchanged even after inclusion of cases initially classified as contamination, suggesting that the favorable outcomes in our cohort were not solely attributable to case selection.

In clinical practice, SLB should be managed with the same level of vigilance and rigor as SAB. From this perspective, a comprehensive diagnostic workup for IE and deep-seated infectious foci is warranted in all patients presenting with SLB. Notably, in the updated 2023 Duke-ISCVID criteria, *S. lugdunensis* is classified as a “common” pathogen for IE, similar to *S. aureus*. Its isolation from ≥ 2 blood culture sets fulfills a major microbiological criterion for IE, suggesting its clinical significance [26]. Although scoring systems such as POSITIVE, PREDICT, and VIRSTA have been proposed to guide the use of TEE in SAB [27], no such tools have been established for SLB. Given the substantial risk of IE demonstrated in both our study and prior reports, echocardiographic evaluation, including TEE, should be considered at a low threshold in SLB. In addition, because distant infectious foci are not uncommon, a comprehensive approach—including repeated blood cultures, source identification by imaging tests, assessment of intravascular devices or prosthetic materials—similar to that used for SAB cases is clinically preferrable.

Involvement of ID specialists may play an important role in optimizing the management of SLB. Unlike other CoNS, *S. lugdunensis* is frequently clinically significant even when isolated from a single positive blood culture [28, 29], yet it is still occasionally regarded as a contaminant in routine clinical practice. In our cohort, 15 of 55 cases (27.3%) were initially considered contamination by the treating physicians. Previous studies have shown that ID consultation is associated with higher rates of echocardiographic evaluation, improved detection of deep-seated infections, and better short- and long-term survival in patient with SLB [23]. Although we did not observe a significant association between ID consultation and outcomes in this study, this may reflect underestimation of its impact due to misclassification of SLB as contamination, limited sample size, and heterogeneity in management practices. Therefore, when *S.*

lugdunensis is isolated from blood cultures, early ID consultation should be considered, even in cases with a single positive culture set.

This study has several limitations. First, as a retrospective multicenter study, the availability of detailed clinical data was limited, and standardized severity indices were not consistently available across institutions. Second, the definition of contamination was based on the clinical judgment of treating physicians and was not standardized, raising the possibility of misclassification between true bacteremia and contamination. In particular, some cases classified as contamination may have represented true SLB, introducing potential selection bias. Third, echocardiography and imaging studies were not performed uniformly, and IE or distant infectious foci may have been underdiagnosed in patients who did not undergo these evaluations. Moreover, because these investigations were performed based on clinical suspicion, detection bias cannot be excluded. Fourth, the sample size was relatively small, limiting statistical power to detect modest differences between groups. Therefore, both significant and non-significant findings should be interpreted with caution. Despite these limitations, to our knowledge, this study represents one of the largest multicenter comparative analyses of SLB, other CoNS bacteremia, and SAB, offering important insights into the clinical behavior of *S. lugdunensis* blood stream infection.

Conclusion

SLB represents an invasive clinical entity with a high propensity for IE and disseminated complications, necessitating a management paradigm distinct from common CoNS infections. A vigilant approach, similar to the standards for *S. aureus* bacteremia, is essential. Defining risk-stratification criteria for TEE and establishing evidence-based management protocols remain critical priorities for future investigation.

Declarations

Conflicts of interest

The authors declare no competing interests.

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Author Contribution

H.H. conceived and supervised the study; S.F., Y.H., K.I., T.S., K.S., and H.A. performed data collection; H.A. drafted the manuscript and performed statistical analyses; H.H. revised the manuscript. All the

authors interpreted the results and approved the submission of the manuscript.

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Availability of data and material

Detailed data are available upon request from the corresponding author.

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Figures

Figure 1. Patient enrolment flow

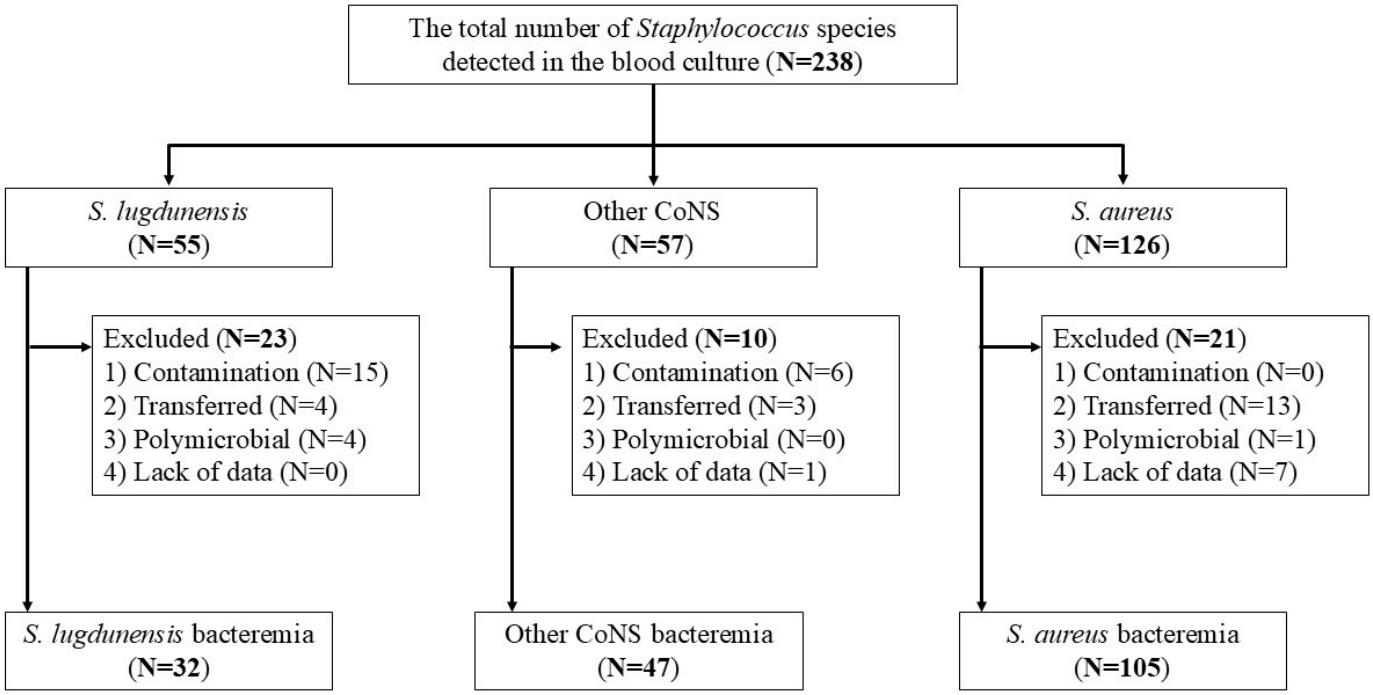


Figure 1

Patient enrolment flow

Figure 2. Kaplan-Meier survival curves comparing 30-day survival rate of *S. lugdunensis*, *S. aureus*, and other coagulase-negative staphylococcal bacteremia

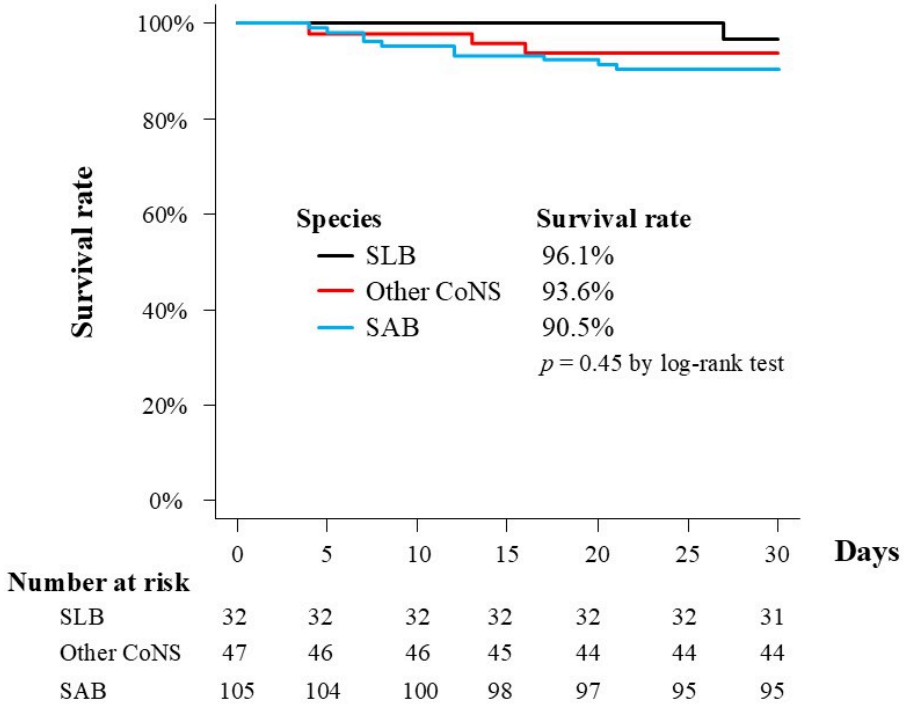


Figure 2

Kaplan-Meier survival curves comparing 30-day survival rate ofSLB, other CoNS bacteremia, and SAB

Kaplan–Meier survival curves comparing 30-day survival among patients with *Staphylococcus lugdunensis* bacteremia (SLB), other coagulase-negative staphylococcal bacteremia (CoNS), and *Staphylococcus aureus*bacteremia (SAB). The 30-day survival rates were 96.9% for SLB, 93.6% for CoNS,and 90.5% for SAB with no significant difference among the groups (log-rank p=0.45).

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