Eligibility of patients with Staphylococcus aureus bacteraemia for early oral switch

Eligibility of patients with *Staphylococcus aureus* bacteraemia for early oral switch

To identify people with low-risk *Staphylococcus aureus* bacteraemia, the SABATO investigators screened 5063 people, finding 213 (4·2%) individuals who met their eligibility criteria.[1] This low proportion of eligible patients led the authors to question whether low-risk *S aureus* bacteraemia is clinically relevant. We aimed to determine the clinical relevance of the SABATO definition of low-risk *S aureus* bacteraemia and whether the trial population was representative of possibly eligible real-world patients. Data were collected retrospectively for 464 adults with *S aureus* bacteraemia at our institution (appendix), approved by the South East Scotland Research Ethics Committee (reference number 23/SS/0025). We then applied the SABATO inclusion and exclusion criteria to identify possibly eligible real-world patients.

In our cohort, 71 (15·3%) of 464 patients would have been possibly eligible for inclusion in the trial. Acquisition of *S aureus* bacteraemia in these patients was nosocomial in 35 (49·3%) of 71. Key cohort characteristics reported by the trial were similar in trial participants compared with possibly eligible real-world patients, although the median Charlson comorbidity index was lower in the trial cohort (table). An intravenous catheter was the most common source of *S aureus* bacteraemia in both cohorts, but there was a higher proportion of *S aureus* bacteraemia from an unknown source in the real-world group (p=0·0015). An unknown source is a risk factor for complications[2,3] and further evaluation combined with intensive follow-up of early oral switch should be considered in this group.

Implanted prosthetic material is a component of the Infectious Diseases Society of America definition of complicated *S aureus* bacteraemia[4] but with some caveats[1] was not an absolute exclusion criterion in the SABATO trial. Nine possibly eligible real-world patients had prosthetic material in situ (n=4 cardiac devices and n=5 orthopaedic implants). These data were not reported for trial participants but could further increase confidence in applicability of the findings. No laboratory or physiological data from the time of the index blood culture was reported but might have been helpful to quantify disease severity and guide patient selection (appendix). We suggest these unreported variables support standardised collection and reporting of cohort characteristics in *S aureus* bacteraemia trials to improve comparability between studies, which is often complicated by variability in the cohort characteristics reported.[5]

We conclude that the subgroup of low-risk *S aureus* bacteraemia studied in the SABATO trial is clinically relevant. We find the similarities between randomised and real-world possibly eligible patients reassuring. Implementation of SABATO findings should be done cautiously and studied prospectively, especially when applied to patients with *S aureus* bacteraemia of unknown source who were infrequently included in the trial.

We declare no competing interests.

	SABATO cohort (n=108)	Real-world cohort (n=71)
Age (years)	64·4 (SD 16·8)	63·2 (SD 17·6)
Sex		
Male	71 (66%)	41 (57·7%)
Female	37 (34%)	30 (42·3%)
BMI (kg per m²)	27·6 (6·7)	28·3 (6·9), 3 missing data points
Co-morbidities		
Moderate or severe liver disease	11 (10%)	8 (11·3%)
Chronic renal failure	17 (16%)	7 (9·9%)
End-stage renal failure	9 (8%)	4 (5·6%)
Diabetes with end-organ damage	19 (18%)	13 (18·3%)
Charlson comorbidity index	3 (IQR 1–5)	5 (IQR 2–7)
Source of bacteraemia*		
Intravenous catheter	71 (66%)	31 (43·7%)
Skin and soft-tissue infection	26 (24%)	17 (23·9%)
Other†	5 (5%)	7 (9·9%)
Unknown	6 (6%)	16 (22·5%)
Resistance‡		
Meticillin	6 (6%)	4 (5·6%)
Clindamycin	12 (12%)	14 (19·7%)
Co-trimoxazole	1 (1%)	4 (5·6%)
Outcomes		
Attributable mortality	2 (2%)	4 (5·6%)
90-day survival rate	83·6%	84·5%
Relapsing *Staphylococcus aureus* bacteraemia	3 (3%)	2 (2·8%)

Comparison of cohort characteristics and outcomes of the SABATO trial intention-to-treat oral switch group and possibly eligible real-world patients from the Edinburgh cohort. BMI=body mass index. *Source of *Staphylococcus aureus* bacteraemia was compared in a 4×2 contingency table using Fisher's exact test (p=0·0015). †All *S aureus* bacteraemia from other source in real-world patients was from the urinary tract. ‡Antimicrobial susceptibility testing was performed using the VITEK®2 (bioMerieux) instrument. Co-trimoxazole susceptibility was inferred from trimethoprim. There were no linezolid resistant isolates in our cohort.

Table: **Comparison of cohort characteristics**

Lancet Infect Dis 2024
Published Online January 31, 2024 https://doi.org/10.1016/S1473-3099(24)00065-3

See Online for appendix

Conceptualisation: CDR. Investigation: GC, HWD, KB, and CDR. Data curation: CDR. Formal analysis: GC, HWD, and CDR. Supervision: CDR. Writing the original draft: CDR. Writing and editing: GC, HWD, KB, and CDR. All authors have access to and verified the underlying data.

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