









EVALUATION OF AUC/MIC AS A PREDICTOR OF MICROBIOLOGICAL AND CLINICAL OUTCOMES IN STAPHYLOCOCCUS GRAM-POSITIVE BACTEREMIA TREATED WITH VANCOMYCIN

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BACKGROUND AND IMPORTANCE

Vancomycin's role in treating gram-positive infections is well-established, yet the optimal AUC/MIC ratio for non-Methicillin-Resistant Staphylococcus aureus (MRSA) bacteremia remains undefined. While a 400-600 mg·h/L AUC/MIC target is recommended for MRSA, this guideline is extrapolated and may not fully apply to other Staphylococcal species. This study assesses AUC/MIC's ability to predict microbiological and clinical outcomes in non-MRSA Staphylococcal bacteremia.

AIM AND OBJECTIVES

Assess whether an AUC/MIC ratio of 400-600 is predictive of clinical and microbiological outcomes in non-MRSA Staphylococcal**bacteremia** treated with vancomycin.

MATERIALS AND METHODS



Retrospective descriptive study

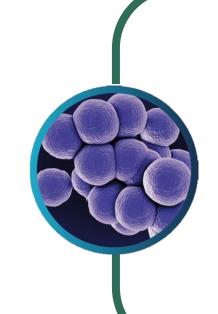


- Demographic (age, sex)
- AUC/MIC
- Bayesian estimated renal clearance (CL)
- Creatinine progression in 48 hours
- Complicated or uncomplicated infection

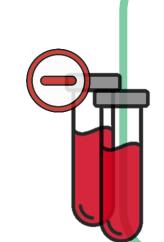


Definitions

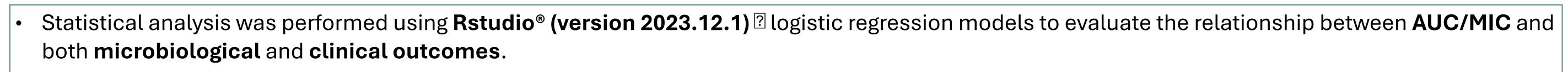
Variables collected



Patients with non-MRSA Staphylococcus bacteremia treated with vancomycin between January 2020 - September 2024



- Clinical cure as normalization of at least 2 out of 3 markers (temperature, C-reactive protein, leukocytes) at 48-72 hours
- Microbiological cure as negative blood cultures at 120 hours



Receiver operating characteristic (ROC) curves were used to assess the predictive power of the models, and AUC values were calculated for both microbiological and clinical outcomes.

RESULTS

46 patients included

Mean age **63.50** years (SD: 14.7)

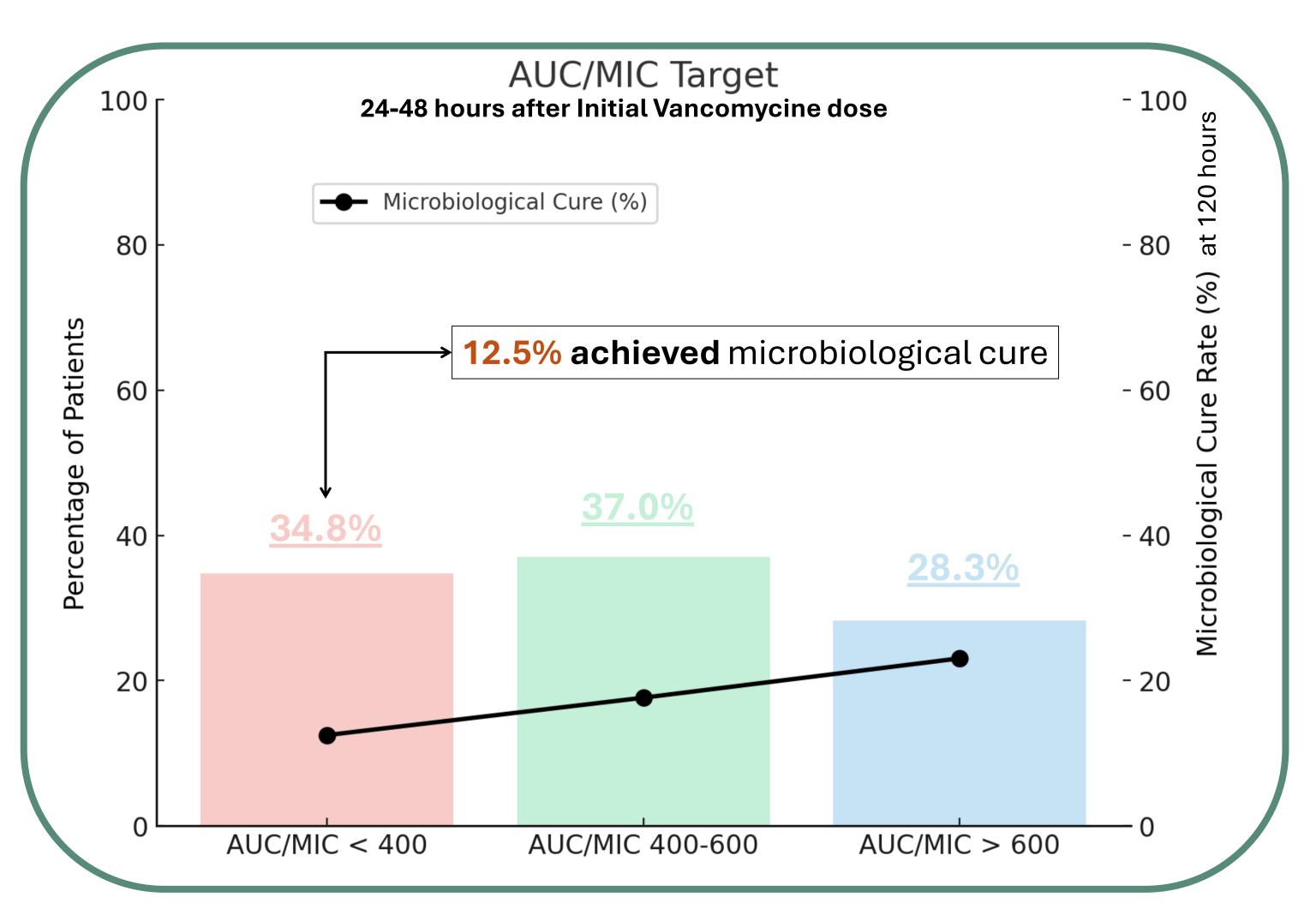
58.70% male

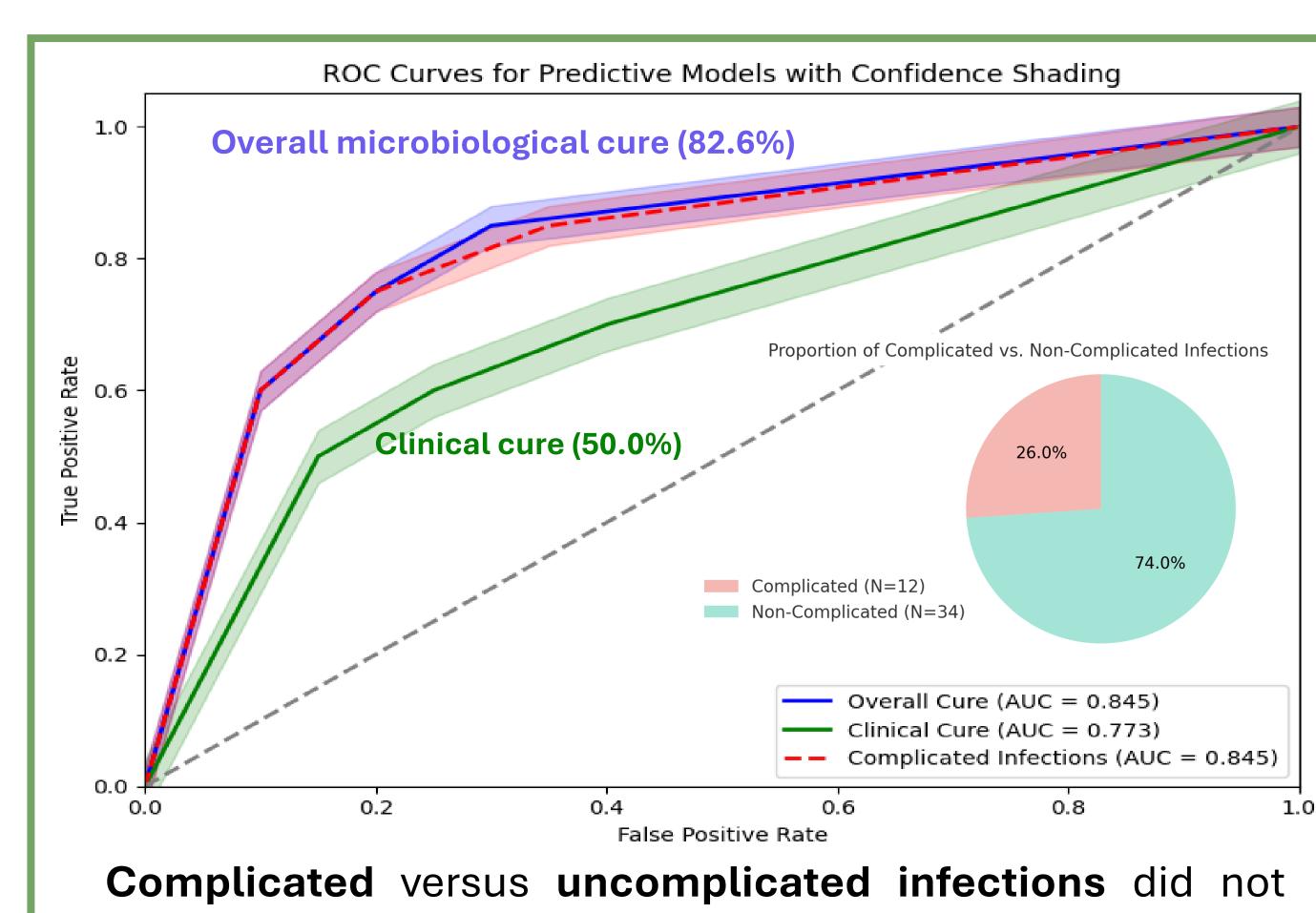
91.30% of cases accounted for Coagulase-negative Staphylococci (CoNS)



Mean Bayesian renal CL: 5.19 L/h (SD: 1.85) Acute kidney injury (AKI) due to treatment was developed in 4.52% of patients*

*data collection under 48 hours may have limited additional cases





significantly improve predictions (AUC=0.845)

CONCLUSION AND RELEVANCE

- Achieving an AUC/MIC of 400-600 was predictive of microbiological cure in non-MRSA bacteremia, but the predictive ability for clinical cure is lower, likely due to the sample size and limited treatment failures.
- Further research with larger cohorts is needed to validate these findings, particularly in complicated-versus-uncomplicated infections.

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Authors declare no conflicts of interest

