



Racial Differences in Candidemic Patients at a Southern California Teaching Hospital

Victoria Grant, PharmD^{1,2}; Anna Zhou, PharmD, BCIDP^{1,2}; Jacinda Abdul-Mutakabbir, PharmD, MPH, AAHIVP^{1,2,3}; Karen Tan, PharmD, BCIDP^{1,2}
(1) LLUMC, Loma Linda, CA; (2) School of Pharmacy, LLU, Loma Linda, CA; (3) Department of Basic Sciences, LLU School of Medicine, Loma Linda, CA



BACKGROUND

- Racial and ethnic inequities within the US healthcare system have been well documented.¹
- Infectious diseases are a leading contributor to disproportionate rates of mortality observed among racially and ethnically minoritized (REM) patients.²
- CDC surveillance data reports Black patients are twice as likely to develop candidemia when compared to their White counterparts.³
- Literature further exploring racial and ethnic differences among patients with candidemia is limited.
- The objective of this study was to describe infection characteristics and outcomes among REM and non-racially and ethnically minoritized (n-REM) patients with candidemia.

METHODS

- Single-center, retrospective, observational study from 1/1/20 – 12/31/21
- Inclusion criteria: ≥ 18 years old AND ≥ 1 BC growing any *Candida* species
- Based on documented race and ethnicity, patients were dichotomized into the n-REM or REM group.
- Endpoints of interest: source of candidemia, etiologic distribution, time to initiation of *in vitro* active antifungal therapy following culture positivity (MIC interpreted as susceptible/S-DD per CLSI M60 2nd edition), total and ICU LOS, all-cause inpatient mortality
- Statistical analysis:
 - Data analyses were conducted on IBM SPSS version 28.
 - χ^2 /Fisher's exact and Student t test/Mann-Whitney U tests were used to calculate *P* values for categorical and continuous variables, respectively.
 - Significance was defined as $P \leq 0.05$.

RESULTS

Table 1: Select Demographic Data

	n-REM (n = 32)	REM (n = 54)	P-value
Age (years), mean (SD)	62.4 (13.4)	53.7 (18.1)	0.017
RF per patient, median (IQR)	3 (1-5)	4 (2-5)	
Common RF, n (%)			
Central line	22 (68.8)	41 (75.9)	
Diabetes mellitus	19 (59.4)	25 (46.3)	
Antibiotic use	12 (37.5)	27 (50)	
ICU admission	12 (37.5)	27 (50)	

RESULTS

Table 2: Select Clinical Data

	n-REM (n = 32)	REM (n = 54)
Sepsis/septic shock, n (%)	26 (81.3)	47 (87)
ICU at time of BC collection, n (%)	17 (53.1)	31 (57.4)
Infectious diseases consult, n (%)	28 (87.5)	51 (94.4)
Suspected source, n (%)		
Central line	14 (43.8)	29 (53.7)
Intra-abdominal	5 (15.6)	9 (16.7)
Translocation	1 (3.1)	5 (9.3)
Genitourinary	4 (12.5)	-
Other	2 (6.2)	5 (9.3)
Unknown	6 (18.8)	6 (11.1)

Figure 1: Time to BC Positivity and Initiation of *in vitro* Active Antifungal

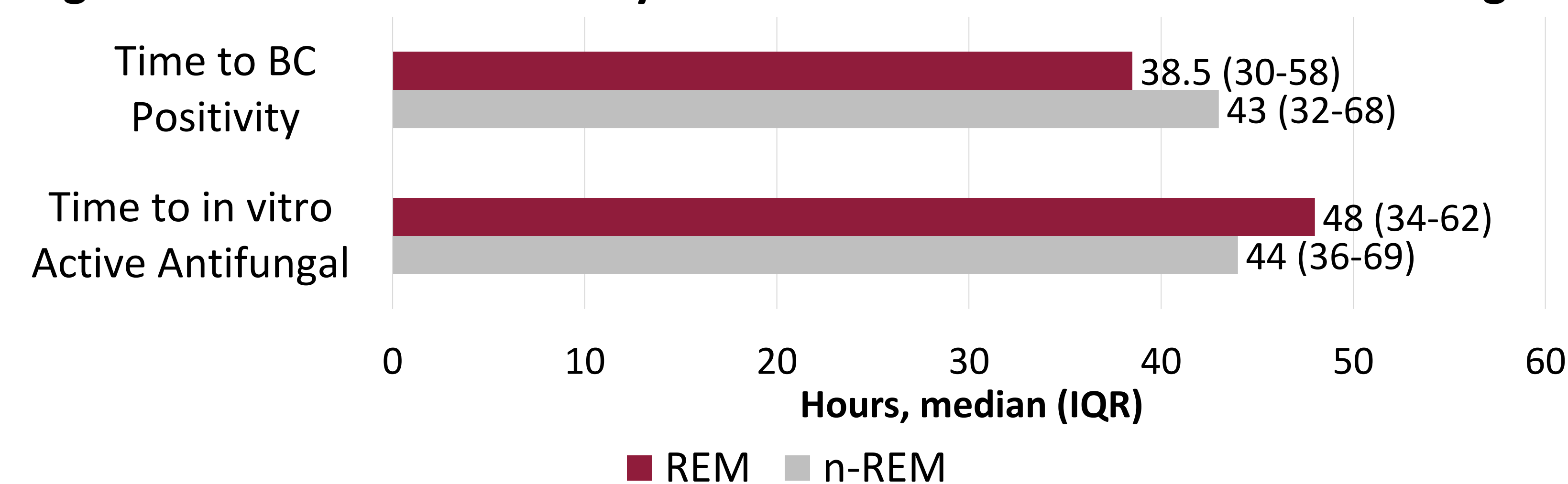
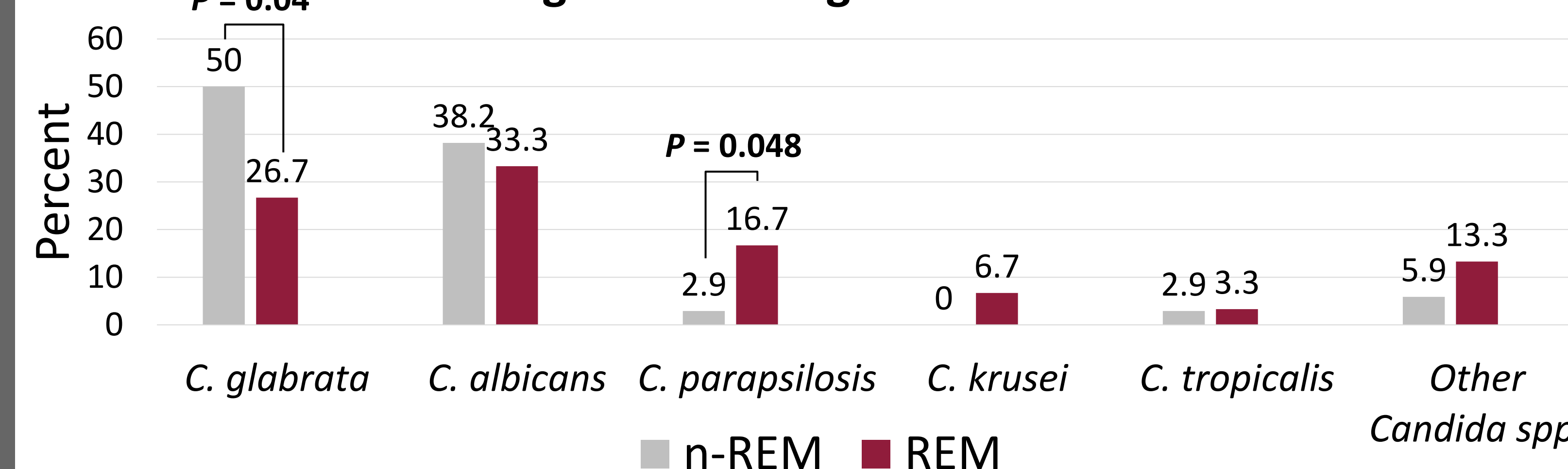


Figure 2: Etiologic Distribution



- 7 patients had polymicrobial candidemia
- 94 *Candida* isolates total, 60 in the REM group and 34 in the n-REM group
- Rates of *C. glabrata* significantly higher in n-REM group (27% vs 50%; $P = 0.04$)
- Rates of *C. parapsilosis* significantly higher in REM group (17% vs 3%; $P = 0.048$)

RESULTS

Table 3: Clinical Outcomes

Outcomes	n-REM (n = 32)	REM (n = 54)
Total LOS (days), median (IQR)	19.5 (7.2-18.5)	25.5 (14-36)
ICU LOS (days), median (IQR)	14 (4-22)	16.5 (8-32)
In-hospital all-cause mortality, n (%)	16 (50)	26 (48.1)

CONCLUSIONS

- REM patients are disproportionately affected by structural and social determinants of health, ultimately resulting in increased incidence and severity of acute and chronic conditions.⁴
 - Despite being significantly younger, REM patients were at an increased risk of candidemia in our study. REM patients more frequently presented in sepsis/septic shock, more often had an ICU admission, and had longer LOS.
- Irrespective of quicker overall time to BC positivity, the time to initiation of *in vitro* active antifungal therapy was slower among REM patients.
- C. parapsilosis*, a globally growing species of concern due to azole resistance, was more frequently isolated among REM patients.⁵
 - Infections due to *C. parapsilosis* have been associated with lower rates of mortality.⁶
 - Despite significantly higher infection rates with *C. parapsilosis* among REM patients, overall rates of all-cause mortality in our study were similar between groups.
- Rapid detection and speciation of candidemia may be particularly important among REM patients to ensure early initiation of optimal therapy.
- Further research exploring racial differences among candidemic patients is needed.

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ACRONYMS:

BC: blood culture; CDC: Centers for Disease Control and Prevention; CLSI: Clinical and Laboratory Standards Institute; ICU: intensive care unit; IQR: interquartile range; LOS: length of stay; MIC: minimum inhibitory concentration; RF: risk factors; SD: standard deviation; S-DD: susceptible-dose dependent; TPN: total parenteral nutrition; US: United States