ORIGINAL RESEARCH

Incidence and Risk Factors Associated with Candida Bloodstream Infections in Immunocompromised Patients

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ABSTRACT

Aim: The aim of this study was to determine the incidence and identify the risk factors associated with Candida bloodstream infections (BSIs) in immunocompromised patients during their hospital stay. **Materials and Methods**: This prospective observational study was conducted in a tertiary care hospital, enrolling 80 immunocompromised patients with confirmed Candida bloodstream infections. Patients were recruited from various hospital wards, including ICU, hematology-oncology, and transplant units. Clinical and laboratory parameters were collected, including patient demographics, clinical risk factors, and laboratory values such as blood cultures, white blood cell counts, and C-reactive protein levels. Risk factors, including prolonged neutropenia, ICU stay, central venous catheter use, total parenteral nutrition, and broad-spectrum antibiotic therapy, were evaluated using multivariate logistic regression analysis. The primary outcome was the incidence of Candida BSIs, and secondary outcomes included identifying key risk factors and evaluating clinical outcomes. **Results:** The incidence of Candida bloodstream infections was 53.33 per 1,000 patient-days. The most commonly isolated species was *Candida albicans* (50%), followed by *Candida glabrata* (18.75%) and *Candida parapsilosis* (15%). Multivariate logistic regression identified significant risk factors for candidemia, including prolonged ICU stay (OR: 3.2, p=0.01), broad-spectrum antibiotic use (OR: 3.5, p=0.01), and central venous catheter use (OR: 2.8, p=0.03). Clinical improvement was observed in 75% of patients, while 12.50% had persistent infections and 12.50% died. **Conclusion:** Candida bloodstream infections present a significant burden in immunocompromised patients, particularly in those with prolonged ICU stays, neutropenia, and central venous catheters. Early diagnosis and prompt antifungal treatment tailored to Candida species can improve clinical outcomes, but mortality rates remain considerable in this vulnerable population.

Keywords: Candida bloodstream infections, immunocompromised patients, risk factors, ICU stay, antifungal treatment.

INTRODUCTION

Candida bloodstream infections (BSIs) represent a significant clinical challenge, particularly in immunocompromised patients, who are at a heightened risk due to their weakened immune systems. Candida species, which are part of the normal flora in many individuals, can become pathogenic when the host's immune defenses are compromised, leading to invasive candidiasis. Among the various forms of invasive candidiasis, candidemia, or Candida bloodstream infection, is the most common, and it is associated with substantial morbidity and mortality, particularly in hospital settings. Immunocompromised individuals, including those undergoing chemotherapy, solid organ transplantation, or receiving immunosuppressive therapies, are at a heightened risk for developing these infections.[1] Candida species are ubiquitous fungal organisms that are typically commensal but can become opportunistic pathogens, particularly in the context of a disrupted immune system or breaches in the body's natural barriers, such as the skin or mucous membranes. When these fungi enter the bloodstream, they can disseminate to various organs, leading to severe systemic infections. Candida BSIs are particularly concerning in immunocompromised patients, who may already be battling multiple comorbidities and are often exposed to prolonged hospital stays, invasive procedures, and broad-spectrum antibiotics, all of which increase the likelihood of fungal infections.[2] The incidence of Candida bloodstream infections varies globally, but it is particularly high in hospital environments, especially in intensive care units (ICUs) and oncology

wards. These settings, which house critically ill and immunocompromised patients, create an environment conducive to the development of nosocomial infections, including candidemia. In recent decades, the rise in the number of immunocompromised individuals, due to advances in medical treatments like chemotherapy and organ transplantation, has been accompanied by an increase in the incidence of invasive fungal infections. The use of invasive medical devices, such as central venous catheters (CVCs), total parenteral nutrition (TPN), and mechanical ventilation, has further contributed to the growing incidence of candidemia in hospital settings.[3] One of the main concerns with Candida bloodstream infections is their association with high mortality rates, which can range from 20% to 50%, depending on the patient population and the timeliness of treatment. These infections are also linked to prolonged hospital stays and increased healthcare costs. Moreover, candidemia can be difficult to diagnose, as its symptoms—such as fever, hypotension, and leukocytosis—are often nonspecific and can mimic those of bacterial sepsis. Blood cultures remain the gold standard for diagnosing candidemia, but they have limitations, including a relatively low sensitivity and the time required to obtain definitive results, which can delay the initiation of appropriate antifungal therapy.[4] In immunocompromised patients, the risk factors for developing Candida bloodstream infections are multifactorial. Neutropenia, defined as an abnormally low number of neutrophils, is one of the most significant risk factors, especially in patients with hematologic malignancies or those undergoing chemotherapy. Neutrophils play a critical role in the immune response to fungal infections, and their depletion makes patients more susceptible to invasive fungal infections like candidemia. Other significant risk factors include prolonged ICU stays, the presence of CVCs, TPN, and the use of broad-spectrum antibiotics. The latter, while essential for treating bacterial infections, can disrupt the normal microbial flora, leading to fungal overgrowth and increased susceptibility to candidemia.[5] Invasive medical devices, particularly CVCs, serve as major entry points for Candida species to access the bloodstream. Biofilms, which are complex communities of microorganisms that adhere to the surface of these devices, are particularly problematic in the context of candidemia. Once a biofilm forms on a CVC, it can be difficult to eradicate, and the risk of infection persists until the device is removed. Similarly, the use of TPN, which provides a nutrient-rich environment, can promote fungal colonization and growth, increasing the risk of bloodstream infections.[6] The use of broad-spectrum antibiotics is another critical risk factor for candidemia. While antibiotics are necessary for managing bacterial infections, their overuse or prolonged use can lead to dysbiosis, a condition in which the normal balance of microbial flora is disrupted. In such cases, fungi, which are not affected by antibiotics, can proliferate unchecked, leading to an increased risk of invasive fungal infections. This is particularly relevant in hospital settings, where patients are often exposed to multiple antibiotics, creating an environment conducive to fungal infections.[7] Corticosteroids and other immunosuppressive therapies also play a role in predisposing patients to Candida bloodstream infections. These medications, while essential for managing autoimmune diseases, preventing transplant rejection, or treating certain cancers, can weaken the immune system, making it more difficult for the body to fight off infections. Corticosteroids, in particular, have been shown to impair various aspects of the immune response, including the function of neutrophils and macrophages, which are key players in the defense against fungal infections.[8] The increasing prevalence of non-albicans Candida species is another emerging concern in the management of candidemia. While Candida albicans remains the most common cause of candidemia, other species, such as Candida glabrata, Candida parapsilosis, Candida tropicalis, and Candida krusei, are becoming more prevalent, particularly in immunocompromised patients. These non-albicans species are often more resistant to commonly used antifungal agents, such as fluconazole, complicating treatment and leading to poorer clinical outcomes. Therefore, accurate identification of the Candida species involved is crucial for guiding appropriate antifungal therapy.[9] Treatment of Candida bloodstream infections typically involves the use of antifungal agents, such as fluconazole, echinocandins, or amphotericin B. The choice of antifungal therapy depends on the Candida species identified, the patient's clinical condition, and the presence of any antifungal resistance. In addition to pharmacological treatment, the removal of CVCs is often recommended, particularly in cases where the infection is catheter-related. Early initiation of appropriate antifungal therapy, combined with the removal of the source of infection, is critical for improving clinical outcomes in patients with candidemia.

MATERIALS AND METHODS

This was a prospective observational study conducted to evaluate the incidence and risk factors associated with *Candida* bloodstream infections (BSIs) in immunocompromised patients. Ethical approval was obtained from the institutional review board, and informed consent was secured from all patients or their legal guardians. The study enrolled 80 immunocompromised patients who developed bloodstream infections during their hospital stay. Patients were recruited consecutively from various hospital wards, including the intensive care unit (ICU), hematology-oncology units, and transplant units. Immunocompromised status was defined as patients receiving chemotherapy, recent organ

transplantation, or chronic use of immunosuppressive therapy, as well as those diagnosed with primary or secondary immunodeficiency disorders.

Inclusion Criteria

- Adult patients (≥18 years) with clinical signs and symptoms suggestive of bloodstream infections (e.g., fever, hypotension, unexplained tachycardia).
- Patients identified as immunocompromised based on underlying medical conditions such as hematologic malignancies, solid organ transplantation, or immunosuppressive therapy.
- Positive blood cultures for *Candida* species during the hospital stay.
- Patients who agreed to participate and provided informed consent.

Exclusion Criteria

- Patients with polymicrobial bloodstream infections where *Candida* species were not the primary pathogens.
- Patients with known fungal infections prior to the current hospitalization.
- Pregnant or lactating women.
- Patients who were discharged or transferred before a confirmed diagnosis of candidemia.

The study included a sample size of 80 immunocompromised patients diagnosed with *Candida* bloodstream infections.

Methodology

Data for this prospective observational study were collected from patient medical records, laboratory results, and continuous clinical monitoring. The data collection included demographic information such as patient age, gender, and underlying medical conditions. Clinical data focused on the presence of known risk factors for candidemia, including neutropenia, central venous catheter (CVC) use, total parenteral nutrition (TPN), prolonged ICU stay, and prior history of broad-spectrum antibiotic use. Laboratory parameters were also recorded, including blood glucose levels, complete blood count (CBC), C-reactive protein (CRP), and creatinine levels, both at the time of diagnosis and during follow-up. Diagnostic data were gathered through blood cultures obtained using aseptic techniques, drawn from both central lines and peripheral sites. The identification of *Candida* species was performed using standard microbiological methods, which included automated culture systems. For precise identification, molecular techniques such as polymerase chain reaction (PCR) and matrix-assisted laser desorption/ionization-time of flight (MALDI-TOF) mass spectrometry were employed. Interventions followed standard hospital protocols for candidemia management. All patients received antifungal therapy based on blood culture results and susceptibility testing. Antifungal agents such as fluconazole, echinocandins, or amphotericin B were administered. Central venous catheters were removed or replaced in patients as clinically indicated based on catheter-associated infection risks. The primary outcome measure was the incidence of *Candida* bloodstream infections among immunocompromised patients during their hospital stay. Secondary outcome measures included identifying key risk factors associated with candidemia, patient morbidity, length of hospital stay, and mortality rates. Risk factors for candidemia were assessed throughout the study, with specific attention given to the duration of neutropenia (absolute neutrophil count <500 cells/µL for more than 7 days), length of ICU stay (greater than 7 days), use of broad-spectrum antibiotics for more than 5 days before candidemia onset, presence of a central venous catheter (CVC) or other invasive devices, and the use of total parenteral nutrition (TPN) for more than 5 days. Additionally, the effects of corticosteroid or immunosuppressive therapy were evaluated as potential risk factors for developing *Candida* bloodstream infections. All patients were followed for 30 days after the diagnosis of candidemia to assess clinical outcomes, including resolution of infection, persistence of candidemia, or mortality. Clinical improvement was defined as negative blood cultures for *Candida* species and improvement in clinical symptoms.

Statistical Analysis

Data were entered into SPSS version 25.0 for statistical analysis. Descriptive statistics were used to summarize the demographic and clinical characteristics of the study population. Continuous variables were expressed as means ± standard deviations (SD), and categorical variables were presented as percentages. The incidence rate of *Candida* bloodstream infections was calculated as the number of candidemia cases per 1,000 patient-days. Univariate analysis was conducted to identify potential risk factors for candidemia using chi-square tests or Fisher's exact tests for categorical variables and independent t-tests for continuous variables. To adjust for confounding variables, a multivariate logistic regression model was used to assess independent risk factors associated with candidemia. Odds ratios (OR) with 95% confidence intervals (CI) were calculated. Statistical significance was defined as a p-value <0.05.

RESULTS

Demographic Profile of Patients (Table 1):

The demographic characteristics of the study population indicate that the average age of the 80 patients included in this study was 54.2 years (±12.8). The gender distribution showed a male predominance, with 60% (48 patients) being male and 40% (32 patients) female. The underlying conditions leading to immunocompromised states were diverse, with hematologic malignancies being the most common at

50% (40 patients). Additionally, 18.75% (15 patients) had undergone solid organ transplantation, and 31.25% (25 patients) were receiving immunosuppressive therapy, highlighting the different clinical scenarios where Candida bloodstream infections may arise.

Clinical Profile (Table 2):

The clinical profiles of the patients revealed multiple predisposing factors for candidemia. A significant proportion, 56.25% (45 patients), experienced neutropenia for more than 7 days, indicating a strong association between neutropenia and the development of Candida BSIs. A prolonged ICU stay of more than 7 days was recorded in 47.50% (38 patients), which further emphasizes the susceptibility of critically ill patients to bloodstream infections. The majority of the patients, 87.50% (70 patients), had central venous catheters (CVCs), a known risk factor for bloodstream infections. Additionally, half of the patients (50%) were on total parenteral nutrition (TPN), and 68.75% (55 patients) had been on broad-spectrum antibiotics for more than 5 days prior to the onset of candidemia. Corticosteroid therapy was used in 37.50% (30 patients), showing its possible role in increasing the risk for fungal infections.

Incidence of Candida Bloodstream Infections per 1,000 Patient-Days (Table 3):

The incidence of Candida bloodstream infections was calculated as 53.33 per 1,000 patient-days. This was determined by tracking 80 patients over a total of 1,500 patient-days. This relatively high incidence underscores the significant risk of candidemia among immunocompromised individuals in hospital settings, particularly those with long hospital stays or ICU admissions.

Laboratory Diagnosis (Table 4):

Laboratory parameters revealed that the average blood glucose level among the patients was 145 mg/dL (±35), while C-reactive protein (CRP) levels, which indicate inflammation or infection, averaged 72 mg/L (±20). The mean creatinine level was 2.1 mg/dL (±0.8), suggesting some degree of renal impairment in these patients, which is consistent with the effects of sepsis or prolonged illness. The white blood cell count was 4,500 cells/µL (±1,200), reflecting the immunocompromised status of many patients, particularly those with neutropenia. All 80 patients had positive blood cultures for Candida species, representing 100% of the study population.

Types of Candida Species Isolated (Table 5):

The Candida species identified from the bloodstream infections varied. Candida albicans was the most commonly isolated species, accounting for 50% (40 patients) of the cases. Candida glabrata was the second most frequent species, found in 18.75% (15 patients), followed by Candida parapsilosis at 15% (12 patients). Other species included Candida tropicalis in 12.50% (10 patients) and Candida krusei in 3.75% (3 patients). The diversity of Candida species highlights the need for accurate species identification and appropriate antifungal therapy based on the species isolated.

Risk Factors for Candida Bloodstream Infections (Multivariate Logistic Regression) (Table 6):

Multivariate logistic regression analysis identified several independent risk factors associated with Candida bloodstream infections. Prolonged ICU stay (>7 days) was the most significant risk factor, with an odds ratio (OR) of 3.2 (95% CI: 1.7–6.0, p=0.01). Other significant risk factors included broad-spectrum antibiotic use for more than 5 days (OR: 3.5, 95% CI: 1.8–6.5, p=0.01), central venous catheter use (OR: 2.8, 95% CI: 1.4–5.2, p=0.03), neutropenia lasting longer than 7 days (OR: 2.5, 95% CI: 1.3–4.8, p=0.02), and the use of total parenteral nutrition (TPN) (OR: 2.1, 95% CI: 1.1–4.0, p=0.05). Corticosteroid therapy showed a trend toward increasing the risk of candidemia (OR: 1.9, p=0.07), though it did not reach statistical significance.

Treatment of Candida Species (Table 7):

Antifungal treatment was tailored based on the Candida species isolated and their susceptibility profiles. Fluconazole was the most frequently used antifungal agent, given to 43.75% (35 patients), particularly for susceptible species like Candida albicans. Echinocandins were administered to 37.50% (30 patients), often for non-albicans Candida species that exhibit fluconazole resistance, such as Candida glabrata. Amphotericin B, a broad-spectrum antifungal, was used in 18.75% (15 patients), typically in cases of severe or refractory infections. Central line removal, an important intervention for reducing catheter-associated infections, was performed in 56.25% (45 patients).

Clinical Outcomes and Mortality in Candida Bloodstream Infections (Table 8):

The clinical outcomes were favorable for most patients, with 75% (60 patients) showing clinical improvement after appropriate treatment. However, 12.50% (10 patients) had persistent Candida bloodstream infections, indicating possible resistance to treatment or other complicating factors such as ongoing immunosuppression. The mortality rate was also 12.50% (10 patients), highlighting the serious nature of candidemia in immunocompromised patients. The mean hospital stay for patients with Candida bloodstream infections was 21 days (±5), indicating prolonged hospitalizations related to the severity of their infections and underlying conditions.

Table 1: Demographic Profile of Patients

Characteristic	Number (n = 80)	Percentage (%)
Mean Age (years)	54.2 ± 12.8	-
Gender		

- Male	48	60%
- Female	32	40%
Underlying Conditions		
- Hematologic Malignancies	40	50%
- Solid Organ Transplant	15	18.75%
- Immunosuppressive Therapy	25	31.25%

Table 2: Clinical Profile

Characteristic	Number (n = 80)	Percentage (%)
Neutropenia (Duration >7 days)	45	56.25%
ICU Stay (>7 days)	38	47.50%
Use of Central Venous Catheters (CVC)	70	87.50%
Total Parenteral Nutrition (TPN)	40	50%
Broad-spectrum Antibiotics (>5 days)	55	68.75%
Corticosteroid Therapy	30	37.50%

Table 3: Incidence of Candida Bloodstream Infections per 1,000 Patient-Days

Total Patients	Candida BSIs	Patient-Days	Incidence (per 1,000 Patient-Days)
80	80	1,500	53.33

Table 4: Laboratory Diagnosis

Laboratory Parameter	Value (Mean ± SD) / Number (%)
Blood Glucose (mg/dL)	145 ± 35
CRP (mg/L)	72 ± 20
Creatinine (mg/dL)	2.1 ± 0.8
White Blood Cell Count (cells/µL)	4,500 ± 1,200
Culture-Positive Cases	80 (100%)

Table 5: Types of Candida Species Isolated

Candida Species	Number (n = 80)	Percentage (%)
Candida albicans	40	50%
Candida glabrata	15	18.75%
Candida parapsilosis	12	15%
Candida tropicalis	10	12.50%
Candida krusei	3	3.75%

Table 6: Risk Factors for Candida Bloodstream Infections (Multivariate Logistic Regression)

Risk Factor	Odds Ratio (OR)	95% CI	p-value
Neutropenia (Duration >7 days)	2.5	1.3–4.8	0.02*
ICU Stay (>7 days)	3.2	1.7–6.0	0.01*
Central Venous Catheters (CVC)	2.8	1.4–5.2	0.03*
Total Parenteral Nutrition (TPN)	2.1	1.1–4.0	0.05
Broad-spectrum Antibiotics (>5 days)	3.5	1.8–6.5	0.01*
Corticosteroid Therapy	1.9	0.9–3.7	0.07

Table 7: Treatment of Candida Species

Antifungal Treatment	Number (n = 80)	Percentage (%)
Fluconazole	35	43.75%
Echinocandins	30	37.50%
Amphotericin B	15	18.75%
Removal of Central Line	45	56.25%

Table 8: Clinical Outcomes and Mortality in Candida Bloodstream Infections

Outcome	Number (n = 80)	Percentage (%)
Clinical Improvement	60	75%
Persistence of Infection	10	12.50%
Mortality	10	12.50%
Mean Hospital Stay (days)	21 ± 5	-

DISCUSSION

The demographic profile of patients in this study revealed that the mean age was 54.2 years, with a male predominance (60% male and 40% female). Hematologic malignancies were the most common underlying condition, affecting 50% of patients, followed by immunosuppressive therapy (31.25%) and solid organ transplants (18.75%). These findings are consistent with other studies where hematologic malignancies have been shown to be a primary risk factor for Candida bloodstream infections (BSIs), as immunosuppression is more profound in these patients, making them more susceptible to fungal infections (Kullberg et al., 2021).[10] The gender distribution aligns with previous research indicating a slight male predominance in candidemia cases, although the reasons for this gender disparity are not well understood (Pfaller et al., 2020).[11] The clinical profile of the study population identified several key risk factors for candidemia. Prolonged neutropenia (56.25%) was a significant risk factor, which has been widely reported in the literature as one of the leading contributors to candidemia, especially in patients with hematologic malignancies (Ruhnke et al., 2020). ICU stay of more than 7 days (47.50%) and the use of central venous catheters (87.50%) were also prominent risk factors.[12] A study by Pappas et al. (2021) supports these findings, noting that ICU patients with long stays and invasive devices are at a higher risk for bloodstream infections due to disrupted immune barriers and exposure to hospital-acquired pathogens.[13] The use of total parenteral nutrition (50%) and prolonged broad-spectrum antibiotic therapy (68.75%) were other important risk factors, consistent with studies that link prolonged antibiotic use with dysbiosis and fungal overgrowth (Zaoutis et al., 2019).[14] The incidence of Candida BSIs in this study was 53.33 per 1,000 patient-days, which is high compared to other reports in the literature. For instance, a large multicenter study reported an incidence of candidemia of 25 per 1,000 patient-days in ICU patients, reflecting a variation based on patient populations and hospital settings (Massetti et al., 2021).[15] The higher incidence in our study may be due to the selection of a highly immunocompromised population, including a large number of hematology-oncology and transplant patients, where candidemia risk is particularly high (Arendrup et al., 2020).[16] The laboratory findings in this study showed elevated CRP (mean 72 mg/L) and creatinine levels (mean 2.1 mg/dL), suggesting significant systemic inflammation and potential renal impairment, which are common in critically ill patients with candidemia (McCarthy et al., 2021).[17] The mean white blood cell count was relatively low (4,500 cells/µL), reflecting the high proportion of neutropenic patients in this cohort, a well-known risk factor for Candida BSIs (Spellberg et al., 2020).[18] All 80 patients had positive blood cultures for Candida species, highlighting the critical role of blood cultures in diagnosing candidemia. Molecular diagnostic methods, such as PCR and MALDI-TOF, were employed to confirm species identification, which is essential for guiding appropriate antifungal therapy (Pfaller et al., 2020).[11] Candida albicans was the most commonly isolated species (50%), followed by Candida glabrata (18.75%), Candida parapsilosis (15%), and Candida tropicalis (12.50%). Candida krusei was isolated in a small number of cases (3.75%). These findings are in line with global data showing Candida albicans as the predominant species causing candidemia, though non-albicans species are becoming increasingly prevalent, particularly in ICU and oncology settings (Kullberg et al., 2021). The distribution of Candida species in our study is similar to that reported by Arendrup et al. (2020), where Candida albicans accounted for approximately 50% of cases, but non-albicans species, particularly C. glabrata and C. tropicalis, are gaining importance due to their resistance patterns and different antifungal susceptibilities.[16] Multivariate logistic regression analysis identified prolonged ICU stay, broad-spectrum antibiotic use, central venous catheterization, and neutropenia as significant risk factors for candidemia, which is consistent with multiple studies (Massetti et al., 2021; Pappas et al., 2021).[13,15] The odds ratio for ICU stay >7 days (OR: 3.2, p=0.01) reflects the vulnerability of critically ill patients to nosocomial infections. The use of broad-spectrum antibiotics (OR: 3.5, p=0.01) further emphasizes the impact of antibiotic-driven disruption of normal flora, leading to fungal overgrowth, a finding also reported by Zaoutis et al. (2019).[14] Central venous catheter use (OR: 2.8, p=0.03) has long been recognized as a major risk factor due to biofilm formation on catheters, providing a nidus for infection (Spellberg et al., 2020). Corticosteroid use, while showing a trend (OR: 1.9, p=0.07), did not reach statistical significance, but remains a clinically relevant risk factor in immunosuppressed populations (Ruhnke et al., 2020).[12] The treatment strategies in this study were based on Candida species and antifungal susceptibilities. Fluconazole was the most commonly used antifungal (43.75%), reflecting its efficacy against susceptible Candida albicans isolates. Echinocandins were administered to 37.50% of patients, particularly for infections caused by Candida glabrata and other non-albicans species with higher resistance rates to azoles (Pfaller et al., 2020).[11] Amphotericin B was reserved for severe or refractory cases, used in 18.75% of patients, which is consistent with current treatment guidelines for difficult-to-treat Candida infections (Pappas et al., 2021).[13] Central line removal, performed in 56.25% of cases, is a well-documented intervention for catheter-related candidemia, significantly improving outcomes when combined with antifungal therapy (Massetti et al., 2021).[15] The clinical outcomes were generally favorable, with 75% of patients showing improvement, though 12.50% experienced persistent infection and an equal percentage died. The 12.50%

mortality rate is within the range reported in other studies, where candidemia-related mortality ranges from 10% to 30%, depending on the patient population and underlying conditions (McCarthy et al., 2021).[17] The mean hospital stay of 21 days reflects the prolonged care required for critically ill patients with candidemia, similar to findings by Zaoutis et al. (2019), where candidemia was associated with increased length of hospital stay and healthcare costs.[14]

CONCLUSION

In conclusion, this study highlights the significant incidence of Candida bloodstream infections among immunocompromised patients, emphasizing the critical role of risk factors such as prolonged ICU stay, neutropenia, and central venous catheter use. Early diagnosis through blood cultures and prompt antifungal treatment tailored to the specific Candida species are crucial for improving patient outcomes. While the overall mortality rate remains substantial, timely interventions, including central line removal and appropriate antifungal therapy, can enhance clinical improvement.

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