

Table – Characteristics of patients on Unit A who did and did not have a diagnosis of Hepatic Failure, January 2019 -September 2021

| | N patients | Patient days | Length of stay (days) | Central line days | Central Line Utilization Ratio | Infection Classification | | | p-value ¹ |
|--------------------|------------|--------------|-----------------------|-------------------|--------------------------------|--------------------------|---------------------------|-------|----------------------|
| | | | | | | N Secondary BSI | N Primary HABS, Not CLABS | CLABS | |
| Hepatic Failure | 1000 | 11547 | 11.5 | 2934 | 0.25 | 6 | 23 | 16 | 0.04 |
| No Hepatic Failure | 3285 | 19363 | 5.9 | 4709 | 0.24 | 10 | 8 | 9 | |

¹ Chi-squared test to compare the distribution of infection classification in patients with and without hepatic failure

Table 2—Distribution of pathogens involved in hospital-acquired bloodstream infection in patients who did and did not have hepatic failure

| Organism | Hepatic failure | No hepatic failure |
|-----------------------|-----------------|--------------------|
| Enterococcus | 16 | 14 |
| Enterobacteriales | 16 | 7 |
| Yeast | 10 | 4 |
| Staphylococcus aureus | 4 | 4 |
| Common Commensal | 7 | 1 |
| Other | 3 | 4 |

ward, we have demonstrated that these units house a population uniquely susceptible to HABS and CLABS.

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Central-line associated bloodstream infection (CLABS) in patients hospitalized with COVID-19

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Background: Significant increases in healthcare-associated infections (HAIs) including central-line associated blood stream infections (CLABS) have been reported during the COVID-19 pandemic. Acute-care hospitals have faced staffing and personal protective equipment shortages, increased critical care capacity, and diversion of resources from traditional HAI surveillance and prevention efforts. In this study, we characterized CLABS among patients with COVID-19 and compared demographics, comorbidities, and outcomes between patients diagnosed with CLABS with and without COVID-19. **Methods:** This is an observational retrospective cohort study of all patients diagnosed with CLABS as defined by NHSN at William P. Clements Jr. University Hospital from April 1, 2020, through September 30, 2021. A retrospective chart review was conducted to identify demographics, comorbidities, and outcomes of hospitalized patients diagnosed with CLABS. Patients hospitalized with and without COVID-19 were compared using the independent-sample *t* test for means and the χ^2 test for proportions. **Results:** Overall, 82 patients diagnosed with CLABS between April 1, 2020, to September 30, 2021, among whom 31 (38%) were hospitalized with COVID-19 and 51 (62%) were not hospitalized with COVID-19. Patients hospitalized with COVID-19 were significantly more likely to be obese (58% for COVID-19 positive vs 26% for COVID-19 negative; *P* = .01) and to require extracorporeal membrane oxygenation (19% vs 4%; *P* = .04). However, COVID-19 patients were significantly less likely to have hematologic malignancy (7% vs 28%; *P* = .03), undergone bone marrow transplantation (0% vs 18%; *P* = .01), or have neutropenia (3% vs 22%; *P* = .03). There were no significant differences in line type or organism identified. Gram-positive pathogens were identified in 16 patients (52%) hospitalized with COVID-19. Gram-negative pathogens were identified in 3 patients (10%); fungal organisms were identified in 10 patients (32%), and 2 cases (7%) were polymicrobial. Patients with COVID-19 were significantly more likely to require an ICU stay (84% vs 43%). **Conclusions:** High device

Table 1. Characteristics of patients with CLABS hospitalized with and without COVID-19

| | Total N=82 | COVID-19 Positive N=31 (38%) | COVID-19 Negative N=51 (62%) | P-value |
|---------------------------|-------------|------------------------------|------------------------------|---------|
| Male | 47 (57%) | 19 (61%) | 28 (55%) | 0.65 |
| Age (mean ± SD) | 58.1± 15.2 | 55.9± 15.3 | 50.4±15.2 | 0.31 |
| Comorbidities | | | | |
| Obesity | 31 (38%) | 18 (58%) | 13 (26%) | 0.01 |
| DM | 20 (24%) | 11 (36%) | 9 (18%) | 0.11 |
| Solid tumor | 11 (13%) | 2 (7%) | 9 (18%) | 0.19 |
| Heme malignancy | 16 (20%) | 2 (7%) | 14 (28%) | 0.02 |
| Solid organ transplant | 7 (9%) | 3 (10%) | 4 (8%) | 1.00 |
| BMT | 9 (11%) | 0 (0%) | 9 (18%) | 0.012 |
| Neutropenia | 12 (15%) | 1 (3%) | 11 (22%) | 0.026 |
| Immunocompromised | 32 (39%) | 7 (23%) | 25 (49%) | 0.02 |
| Recent Surgery | 7 (9%) | 1 (3%) | 6 (12%) | 0.25 |
| ECMO | 8 (10%) | 6 (19%) | 2 (4%) | 0.04 |
| Location | | | | <0.001 |
| Ward | 34 (41%) | 5 (16%) | 29 (57%) | |
| Intensive Care Unit | 48 (59%) | 26 (84%) | 22 (43%) | |
| Days admitted (mean ± SD) | 20.9 ± 20.4 | 27.1 ± 25.1 | 17.1 ± 16.1 | 0.03 |
| Line days (mean ± SD) | 15.6 ± 12.4 | 19.5 ± 17.0 | 13.2 ± 7.8 | 0.03 |
| Line type | | | | 0.07 |
| PICC | 23 (28%) | 5 (16%) | 18 (35%) | |
| CVC | 19 (23%) | 10 (32%) | 9 (18%) | |
| HD | 14 (17%) | 3 (10%) | 11 (22%) | |
| Port | 4 (5%) | 1 (3%) | 3 (6%) | |
| More than 1 | 22 (27%) | 12 (39%) | 10 (20%) | |
| Organism | | | | 0.38 |
| Gram positive | 37(45%) | 16 (52%) | 21 (41%) | |
| Gram negative | 16 (20%) | 3 (10%) | 13 (26%) | |
| Fungal | 24 (29%) | 10 (32%) | 14 (28%) | |
| Polymicrobial | 5 (6%) | 2 (7%) | 3 (6%) | |

utilization as well as prolonged hospitalization and line days among patients with COVID-19 along are contributing risk factors for CLABS among patients hospitalized with COVID-19. This finding highlights the need for ongoing HAI surveillance and prevention efforts in patients hospitalized with COVID-19 given their characteristics and increased risk for CLABS. Reinforcing infection prevention efforts by accentuating the importance of optimal line care and regular feedback are crucial, especially among patients hospitalized with COVID-19.

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Human factors analysis of the disinfection of central-line needleless connectors

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Background: Patients requiring vascular catheters are at risk for bloodstream infections (BSIs), particularly those with central venous access devices (CVADs). Central-line-associated bloodstream infections (CLABS) may occur as a result of the introduction of pathogenic microbes during CVAD access procedures, including through the needleless connector. The use of an antiseptic scrub is recommended to disinfect the needleless connector before device access, and this procedure has been shown to reduce the risk for CLABS. We identified perceived barriers and facilitators and assessed compliance with instructions for use of chlorhexidine or alcohol antiseptic products (CHG or IPA; 5-second scrub time plus 5-second dry time) and alcohol antiseptic products (IPA; facility protocol 15-second scrub time plus let dry) for needleless connector disinfection. **Methods:** We performed a multiple-methods study involving focus groups composed of a convenience sample of nurses and clinical observations of CVAD needleless-connector access procedures in 3 medical ICUs and 1 surgical ICU at 2 academic medical centers. We used open-ended questions to guide the focus-group discussions. We directly observed nursing staff performing needleless-connector disinfection following a time-motion paradigm using an electronic tool to document the observed needleless-connector access events and to measure needleless-connector