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5 **Admission Frailty Is Associated with Acute Respiratory Failure and Mortality in Burn Patients > 50**

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**Introduction:** Pre-injury frailty has been shown to predict mortality of older burn patients. Herein, we assessed the utility of the Canadian Study of Health and Aging Clinical Frailty Scale (CSHA-CFS) to predict burn-specific outcomes. We hypothesize that frail patients are at greater risk for complications such as graft loss, acute respiratory failure, and acute kidney injury and will require increased healthcare support at discharge.

**Methods:** This is a retrospective cohort study. Patients 50 years and older admitted to our Institution for burn injuries between July 2009 and June 2019 were included. Patients with inhalation injury only, no data on total burn surface area, or for whom medical history was incomplete were excluded. Demographics; comorbidities; pre-injury functional status; admission, injury, and hospitalization information; complications (graft loss, acute respiratory failure, and acute kidney disease (AKI)); mortality, and discharge disposition were collected. Patients were scored on the CSHA-CFS based on pre-admission health and functional status. The frail and non-frail groups were compared. Multivariate analyses were performed to assess the association between admission frailty and outcomes.  $P < 0.05$  was considered significant.

**Results:** We included 851 patients, 697 were not frail and 154 were frail. Frail patients were significantly older ( $66.1 \pm 10.8$  vs.  $63.5 \pm 10.9$ ,  $p = 0.002$ ), more likely Caucasian (98.1% vs. 91%,  $p = 0.027$ ) and to have suffered flame burn injuries (68.8% vs. 59.8%,  $p < 0.001$ ). Frail patients had a lower %TBSA ( $4.4 \pm 8.1\%$  vs.  $10.1 \pm 13.1$ ,  $p < 0.001$ ) but were more likely to stay longer in hospital relative to %TBSA ( $3.6 \pm 6.7$  vs.  $1.9 \pm 3.1$ ,  $p < 0.001$ ). Frail patients were less likely to have had skin graft procedures (27.3% vs. 57.4,  $p < 0.001$ ). On multivariate analysis, controlling for age, sex, race, mechanism of injury, %TBSA, 2<sup>nd</sup> degree and 3<sup>rd</sup> degree burn surface, inhalation injury, frailty was associated with acute respiratory failure (OR = 2.599 [1.460-4.628],  $p = 0.001$ ). Frailty was also associated with mortality (OR = 6.915 [2.455-19.980];  $p < 0.001$ ) when controlling for the same variables as well as acute respiratory failure and AKI. Frailty was also associated with discharge to home with healthcare services (OR = 2.678 [1.491-4.809],  $p = 0.001$ ), to SNF, rehabilitation, or long-term acute care facilities (OR = 3.572 [1.933-6.602],  $p < 0.001$ ), and to hospice (OR = 5.759 [1.519-21.827],  $p = 0.010$ ) when compared to home without healthcare services.

**Conclusions:** Frailty is associated with increased risk of acute respiratory failure, mortality, and requiring increased healthcare support post-discharge. Our data suggest frailty as a tool to predict morbidity and mortality as well as for goals of care discussions for the burn patient.

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6 **Risk Factors and Comorbidities Associated with Post-burn Hypertension**

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**Introduction:** Hypertension (HTN) is a prevalent condition in the United States and leads to an increased risk of developing other comorbidities. However, the impact of hypertension following severe burns on patient outcomes is not known. We hypothesize that post-burn hypertension is associated with an increased risk of other comorbidities and mortality.

**Methods:** This study used data from TriNetX, a global federated health research network. Burned patients who were diagnosed with essential hypertension at least 1 day after injury were identified in the TriNetX database using specific ICD codes and were compared to those who did not develop essential hypertension; neither cohort was diagnosed with hypertension prior to injury. Each cohort was balanced for age, gender, race, and ethnicity. Occurrence of the following within 3 days of burn was compared between the two cohorts: acute kidney injury (AKI), hyperglycemia, heart failure, coronary artery disease, and death. These patient cohorts were then stratified by gender, percent total body surface area (TBSA) burned, and age. Statistical analysis for the measures of association used an odds ratio with a 95% confidence interval and a risk ratio with a z-test. Significance for the z-test was set at a p-value of  $< 0.05$ .

**Results:** The search identified 460,977 burn patients of whom 87,808 were diagnosed with hypertension at least 1 day after burn injury. Those diagnosed with hypertension were 7.25 times as likely to develop AKI, 5.45 times as likely to develop hyperglycemia, 7 times as likely to develop heart failure, 7.17 times as likely to develop coronary artery disease, and 1.78 times as likely to die. Men were at greater risk of experiencing AKI, heart failure, coronary artery disease, and death, however, women were 1.51 times as likely to develop hyperglycemia. Stratification based on % TBSA burned indicated an increased risk for all outcomes for patients with a high percentage of total body surface area burned (60% to > 90% TBSA burned was higher than < 10% to 50-59% groups). Subgroup analysis based on age indicated elevated risk of developing AKI, heart failure, coronary artery disease,