

**A145 - Hypercalcemia after admission to intensive care unit is associated with mortality.**

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**Introduction:**

The purpose of this study is to evaluate the association between the development of hypercalcemia and the patient outcomes.

**Methods:**

This single-center retrospective cohort study included patients aged  $\geq 15$  years admitted to the intensive care unit (ICU) of Osaka University Hospital between January 1, 2016, and December 31, 2018 (approval number: 20258). The hypercalcemia group comprised patients with  $\geq 11.0$  mg/dl serum calcium and/or albumin corrected calcium levels occurring even once in the ICU, while others were defined as the normal calcium group. All information were retrieved from the institutional electronic medical records. The primary outcome was ICU mortality. Data of the outcome variables and baseline characteristics of each group were compared using the Mann-Whitney U-test or Fisher's exact test. We used a propensity score (PS) matching by fitting a logistic regression model that was adjusted for age, sex, and the acute physiology and chronic health evaluation II score. We also compared hypercalcemia patients who died and survived in the ICU. All P-values were 2-sided, and the level of significance was set at 0.05.

**Results:**

A total number of 2410 patients were investigated; of whom, 147 (6.1%) patients had hypercalcemia. The hypercalcemia group had a higher rate of ICU mortality than that of the normal calcium group (25.2% vs. 1.2%,  $P < 0.001$ ) even after PS matching (25.2% vs. 4.8%,  $P < 0.001$ ). The hypercalcemia group had higher rates of ICU morbidity and hospital mortality ( $P < 0.001$  for all) (table). The patients of the hypercalcemia group who died in the ICU were found to have higher maximum calcium levels (12.4 [12.2-12.6] vs 11.4 [11.2-12.0] mg/dl,  $P < 0.001$ ), and the highest calcium level was observed on a day later than that for patients who survived (37.0 [23.5-66.0] vs 9.0 [2.0-18.0] days,  $P < 0.001$ ).

**Conclusion:**

Hypercalcemia occurred in 6.1 % of the ICU patients, and it was significantly associated with ICU mortality.

**Table:**

	Hypercalcemia group N=147	Normal calcium group N=2263	P
ICU mortality	37 (25.2%)	28 (1.2%)	<0.001
Hospital mortality	58 (39.5%)	74 (3.3%)	<0.001
Tracheostomy	62 (42.2%)	98 (4.3%)	<0.001
Mechanical circulation support	36 (24.5%)	143 (6.3%)	<0.001
Renal replacement therapy	79 (53.7%)	140 (6.2%)	<0.001
Propensity score matching ICU mortality	37/147 (25.2%)	7/147 (4.8%)	<0.001
Propensity score matching hospital mortality	58/147 (39.5%)	14/147 (9.5%)	<0.001