

## Introduction

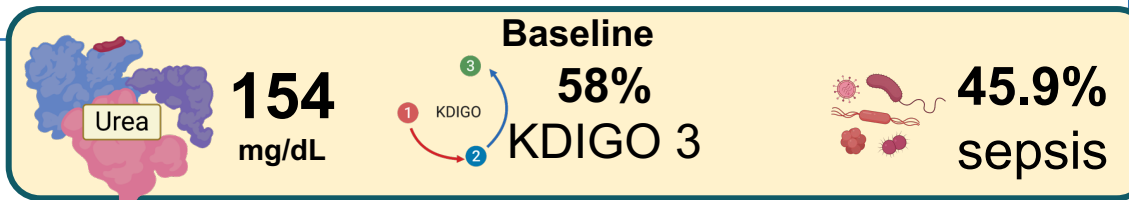
Urea is a toxin present in AKI. We hypothesize that reduction in serum urea levels might improve clinical outcomes. We examined the association between the reduction in urea and mortality

## Methods and Materials

Patients with AKI admitted to the Hospital Civil de Guadalajara were enrolled in this retrospective cohort study. We create 4 groups of urea reduction (UXR) stratified by their decrease in urea from the highest index value in comparison to the value on day 10 (0%, 1-25%, 26-50% and >50%), or at the time of death or discharge if prior to 10 days. Our primary endpoint was to observe the association between UXR and mortality. Secondary observations included determination of which types of patients achieved a UXR >50%, whether the modality of kidney replacement therapy (KRT) effected changes in UXR, and if serum creatinine (sCr) value changes were similarly associated with patient mortality

## Results

A total of 651 AKI patients were enrolled. The mean age was 54.1 years, and 58.6% were male. AKI 3 was present in 58.5%, the mean admission urea was 154 mg/dL. KRT was started in 32.4%, and 18.9% died. A trend toward decreased risk of death was observed in association with the magnitude of UXR. The best survival (94.3%) was observed in patients with a UXR >50%, and the highest mortality (72.1%) was observed in patients achieving a UXR of 0%. After adjusting for age, sex, diabetes mellitus, CKD, antibiotics, sepsis, hypovolemia, cardio-renal syndrome, shock and AKI stage the 10-day mortality was higher in groups that did not achieve a UXR of at least 25% (OR 1.20). Patients achieving a UXR >50% were most likely initiated on dialysis due to a diagnosis of the uremic syndrome, or had a diagnosis of obstructive nephropathy. Percentage change in sCr was also associated with increased mortality risk



### Primary objective

10-days survival by Urea reduction%

|                          | N   | Events | Survival |           |
|--------------------------|-----|--------|----------|-----------|
| 10-days overall survival | 651 | 123    | 81.1%    | 0.78-0.84 |
| >51%                     | 87  | 5      | 94.3%    | 0.89-0.99 |
| 26-50%                   | 97  | 8      | 91.8%    | 0.86-0.97 |
| 1-25%                    | 137 | 18     | 86.9%    | 0.81-0.92 |
| 0%                       | 330 | 92     | 72.1%    | 0.67-0.77 |

### Secondary objective

KRT on mortality according to the of Urea reduction%

|            | Model adjusted   |         |
|------------|------------------|---------|
|            | OR (95% CI)      | P value |
| >50% C     | 1 (reference)    | -       |
| >50% KRT   | 0.95 (0.81-1.11) | 0.57    |
| 26-50% C   | 1.01 (0.88-1.15) | 0.84    |
| 26-50% KRT | 1.06 (0.90-1.24) | 0.44    |
| 1-25% C    | 1.04 (0.92-1.18) | 0.49    |
| 1-25% KRT  | 1.20 (1.04-1.39) | 0.009   |
| 0% C       | 1.15 (1.03-1.28) | 0.009   |
| 0% KRT     | 1.42 (1.26-1.28) | <0.001  |

## Conclusions

The percent decrease in UXR from admission was associated with a stratified risk of death. Patients with a UXR >25% had the best associated outcomes. Overall, a greater magnitude in UXR was associated with improved patient survival

