Association of Continuation of Loop Diuretics at Hemodialysis Initiation with Clinical Outcomes

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Introduction

- Loop diuretics are commonly utilized in the management of non-dialysis dependent chronic kidney disease but are often discontinued after hemodialysis initiation.1,2
- Many end-stage renal disease (ESRD) patients continue to experience episodes of volume and potassium overload despite regularly receiving dialysis treatments.
- These episodes are associated with increased risk of morbidity and mortality.1,2
- Diuretic medications may help to mitigate circumstances through increasing urine output and thereby improving outcomes.1

Objective

To assess the association of the early decision to continue vs discontinue loop diuretics at dialysis start with clinical outcomes during the first year of dialysis.

Methods

Study Patients

- This analysis considered all patients who initiated in-center hemodialysis at a large dialysis organization (SDOJ) between 2007 and 2013 with Medicare Part A and D benefits and who had an active supply of loop diuretics at the time of dialysis initiation.
- A separate analysis considered only the subset of patients with evidence of residual renal function, defined as the presence of 24-48 hour urine sample with ≥200 mL collected at any time during the study period.
- Exposure status was based on whether loop diuretic prescription was refilled after dialysis initiation and within 30 days of exhaustion of prior supply.

Outcomes and Statistical Analysis

- Patients were followed under an intention-to-treat paradigm for up to 12 months following dialysis initiation.
- A lower rate of IDH was associated with (Figure 3, right panel):
  - A lower death rate that did not reach statistical significance
  - A lower rate of hospitalization
  - A higher rate of IDH
- No differences in predialysis systolic blood pressure, interdialytic weight gain, or serum potassium concentrations were observed during follow-up (Figure 2).

Results

Patients Overall

- Of 11,297 patients who had dialysis initiation, 162 patients (1.4%) had 24–48-hour urine samples collected at ≥200 mL.
- Comparison of baseline characteristics indicated that patients who continued loop diuretics had lower levels of dialysis initiation and were more likely to use a futa (24.5% vs 16.2%) than those who did not.
- Higher serum albumin concentrations on average (3.6 vs 3.5 g/dL)
- After adjustment for case mix and clinical differences, continuation of loop diuretics (vs no) was associated with:
  - A lower rate of hospitalization
  - A lower rate of IDH
- No differences in predialysis systolic blood pressure, interdialytic weight gain, or serum potassium concentrations were observed during follow-up (Figure 2).

Patients with Evidence of Residual Renal Function

- Of 11,297 patients who had dialysis initiation (RFF) at dialysis initiation, we identified 162 patients who continued loop diuretics and 2086 eligible controls who did not.
- Comparison of baseline characteristics indicated that patients who continued loop diuretics after dialysis initiation (Figure 3, left panel):
  - Were younger on average (67.1 vs 68.6 years)
  - Were more likely to use a futa (26.5% vs 17.9%)
  - Had higher serum albumin concentrations on average (3.6 vs 3.5 g/dL)
- After adjustment for case mix and clinical differences, continuation of loop diuretics (vs no) was associated with (Figure 3, right panel):
  - A lower death rate that did not reach statistical significance
  - A lower rate of hospitalization
  - A higher rate of IDH
  - No differences in predialysis systolic blood pressure, interdialytic weight gain, or serum potassium concentrations were observed during follow-up (Figure 4).

Summary and Conclusions

- Among incident hemodialysis patients, continuation of loop diuretics after the start of dialysis (as opposed to discontinuation) was associated with:
  - Significantly lower risk for all-cause hospitalizations in patients overall (7% reduction) and in the subset who had evidence of RFF (6% reduction)
  - Significantly lower risk for IDH in patients overall (5% reduction), but significantly higher risk in the subset who had evidence of RFF (3% increase)
  - Favorable trends in mortality that were not statistically significant
  - No appreciable differences were observed in mean monthly predialysis blood pressure, interdialytic weight gain, or serum potassium values in patients overall or those with evidence of RFF.
- Patients with evidence of RFF were identified based on the presence of a 24- or 48-hour urine sample
- Those who were still producing significant amounts of urine but who did not have a urine collection during the study period may have been excluded from the RRF subset.

References


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Poster available at da vita-clinicalresearch.com

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