The Relationship of Creatinine, Sodium, Hematocrit and Hemoglobin A1c to 30-Day Hospital Readmission Among Older Adults with Type 2 Diabetes

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ABSTRACT

OBJECTIVE: The aim of this study was to identify factors associated with 30-day unplanned hospital readmissions among older adults with T2DM.

METHODS: Participants were older adults > 65 years old with T2DM, admitted to a community hospital from January 2016-January 2017. Of 843 patients, 200 were randomly selected to have their electronic medical records reviewed for this study.

RESULTS: Patients readmitted within 30 days of discharge were similar to patients who were not readmitted on most demographic characteristics, except for hospitalization in the 12 months before admission. Readmitted and not readmitted patients also differed on their hematocrit levels at admission.

CONCLUSION: Older adults with T2DM who were readmitted within 30 days of discharge had higher hematocrit levels at admission.

INTRODUCTION

Reducing 30-day hospital readmissions is a top healthcare priority. However, there is little literature describing the risk factors of readmission among patients with diabetes, especially for older adults. Understanding what the risk factors are for 30-day hospital readmission for older adults with type 2 diabetes would help identify patients at risk of rehospitalization.

METHODS

Inclusion Criteria: Participants were older adults > 65 years old admitted to a community hospital from January 1, 2012 to January 1, 2017 with a diagnosis of T2DM at their index hospitalization, defined as patients’ first hospitalization to occur during the study period.

Exclusion Criteria: Patients were excluded if they died during the index hospitalization or were discharged to hospice.

PROCEDURES

Of the 843 patients who met the study’s inclusion criteria, 200 were randomly selected to have their electronic medical records reviewed.

Factors investigated were: patients’ demographics, characteristics of the index hospitalization, and patients’ creatinine, sodium, hematocrit, and hemoglobin A1c at admission.

RESULTS

Readmission Rate: Of the 200 patients, 15.5% (N=31) had an unplanned hospital readmission within 30 days of discharge.

<table>
<thead>
<tr>
<th>Laboratory test</th>
<th>Readmitted</th>
<th>Not Readmitted</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine mg/dL</td>
<td>(N=200)</td>
<td>(N=151)</td>
<td>(N=200)</td>
</tr>
<tr>
<td>N M (SD)</td>
<td>31 2.27 (1.96)</td>
<td>169 1.55 (1.11)</td>
<td>0.06</td>
</tr>
<tr>
<td>Sodium mmol/L</td>
<td>(N=200)</td>
<td>(N=151)</td>
<td>(N=200)</td>
</tr>
<tr>
<td>N M (SD)</td>
<td>31 138.26 (3.90)</td>
<td>169 137.16 (3.98)</td>
<td>0.16</td>
</tr>
<tr>
<td>Hematocrit %</td>
<td>(N=200)</td>
<td>(N=151)</td>
<td>(N=200)</td>
</tr>
<tr>
<td>N M (SD)</td>
<td>31 32.77 (6.64)</td>
<td>169 36 (6.17)</td>
<td>0.00</td>
</tr>
<tr>
<td>Hemoglobin A1c %</td>
<td>(N=151)</td>
<td>(N=151)</td>
<td>(N=151)</td>
</tr>
<tr>
<td>N (%)</td>
<td>20 7.07 (1.99)</td>
<td>131 7.80 (2.02)</td>
<td>0.27</td>
</tr>
</tbody>
</table>

No statistically significant differences were found between readmitted and not readmitted patients on their sodium and hematocrit at admission.

There was a statistically significant difference on hematocrit at admission, with readmitted patients having lower hematocrit levels than patients not readmitted.

Differences between readmitted and not readmitted patients on creatinine approached, but did not reach, statistical significance.

CONCLUSIONS

Readmitted and not readmitted patients with T2DM were similar on most demographic characteristics.

Patients who had been readmitted within 30 days of discharge were more likely than patients who had not been readmitted to have had a previous hospitalization in the 12 months prior to admission.

Patients who returned to the hospital 30 days post-discharge had lower hematocrit levels than patients who did not return to the hospital.

Future analyses of these data will incorporate other potential predictors of hospital readmission in this population.

REFERENCES


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