CITRATE-CONTAINING DIALYSATE IS WELL TOLERATED DURING SLOW EXTENDED DAILY DIALYSIS IN THE ICU

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BACKGROUND

- Slow Extended Daily Dialysis (SLEDD) is a well tolerated method of Continuous Renal Replacement in ICU patients
- There is concern about the amount of anticoagulation used to maintain the dialysis circuit during extended treatments
- Citrate based dialysate (Citrasate®) has been used to perform heparin-free, outpatient intermittent hemodialysis
- Citrasate® was used to perform SLEDD in our ICU patients with clinical contraindications to the use of anticoagulation
- In this report, we review our experience with the safety and efficacy of Citrasate® compared to those receiving Saline Flashes alone during anticoagulant-free SLEDD in the ICU

METHODS

- UCDMC patients, receiving inpatient dialysis during 2005
- Patients were admitted to 1 of 7 Intensive Care Units
- For inclusion patients must be ≥18 years, and on SLEDD with clinical contraindications to the use of any form of anticoagulation
- All patients received 200 cc saline flushes at least every hour
- Citrasate® treated patients were compared to other SLEDD treated patients receiving Saline flushes alone every 30 to 60 minutes
- Citlating was defined as: Early discontinuation of dialysis, greater than 30 minutes prior to prescribed time, because of circuit clotting in either the lines, chambers or dialyzer.
- Data was abstracted by chart review and groups were compared using Chi-Square, T-test and ANOVA

RESULTS

Baseline Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Citrasate® (y/9 ps)</th>
<th>Saline Flush (All) (y/9 ps)</th>
<th>Saline (30 min) (y/9 ps)</th>
<th>Saline (1 hr) (y/9 ps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)*</td>
<td>50±13</td>
<td>58±15</td>
<td>57±16</td>
<td>60±15</td>
</tr>
<tr>
<td>Women (%)</td>
<td>17</td>
<td>41</td>
<td>31</td>
<td>46</td>
</tr>
<tr>
<td>Pressure (%)</td>
<td>27*</td>
<td>16*</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Catheters (%)</td>
<td>68</td>
<td>95</td>
<td>94</td>
<td>98</td>
</tr>
<tr>
<td>Order treatment time (min)*</td>
<td>5.9±1.2</td>
<td>5.8±1.3</td>
<td>5.8±1.8</td>
<td>5.9±1.3</td>
</tr>
<tr>
<td>Average Starting BP (mmHg)</td>
<td>126±6/2</td>
<td>130±6</td>
<td>130±6</td>
<td>129±6</td>
</tr>
</tbody>
</table>

*Values expressed as means (aSD)

DISCUSSION

- Citrate-based dialysate appears safe, since we observed no adverse events during 6 hour SLEDD treatments
- Citrasate® was more effective than Saline flushes alone, at completing anticoagulant-free SLEDD treatments in the ICU
- We observed significantly less clotting events in those on Citrasate® + hourly saline flushes (16%), compared to those receiving Saline Flashes every 30 or 60 minutes alone (30%)
- Despite the statistical significance, serum ionized calcium levels remained clinically stable during all SLEDD treatments
- Use of Citrasate® required significantly less frequent flushing of dialysis circuits and thereby reduced nursing time
- Based on our experiences, a randomized, prospective trial, to further study the benefits citrate-based dialysate is warranted

LIMITATIONS

- Retrospective observational, single center Review
- Small cohort, non-randomized
- Experiences influenced by highly skilled Renal Services support
- Limited to available, documented data

ACKNOWLEDGEMENTS

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