Intravenous N-Acetylcysteine (NAC) causes few adverse drug events with anaphylactoid reactions being the most common. A case of hyponatremia from NAC’s hypoosmolar diluent was reported in 1967 but this occurred before electronic medication ordering was commonplace.

Case Report

- 13 month old female with no past medical history presented to a hospital after ingesting Tylenol Extra Strength
- The 4 hour acetaminophen level was 343 mcg/mL and she was started on IV NAC
- 12 hours later she developed tonic-clonic seizures with sodium measuring 124 mEq/Liter, decrease from 142 mEq/Liter at the time of admission
- Was treated with hypertonic saline, lorazepam, levetiracetam and had no further seizures
- Brain MRI and EEG were both normal

Blood sodium concentration (mEq/Liter) vs Time

Results

- EMR ordering system did not allow for volume adjustment of NAC for a young child
- NAC dose was correct, however, the diluent volume was a standard amount for an adult but not an 8 kg child

Discussion

- Because the 21 hour IV NAC administration involves preparation of 3 different doses, an order set was developed to reduce ordering errors
- With the exception of patient’s weight, no other aspect of this order set was adjustable
- The present values caused the pharmacist to prepare a solution that contained too much free water decreasing patient’s intravascular sodium and resulting in a seizure

Acetadote® Dosing - Received vs FDA Recommendation

<table>
<thead>
<tr>
<th></th>
<th>Actually Received</th>
<th>FDA Approved</th>
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<tbody>
<tr>
<td>Bag #1</td>
<td>25 mL/kg</td>
<td>3 mL/kg</td>
</tr>
<tr>
<td>Bag #2</td>
<td>62.5 mL/kg</td>
<td>7 mL/kg</td>
</tr>
<tr>
<td>Bag #3</td>
<td>25 mL/kg</td>
<td>14 mL/kg</td>
</tr>
<tr>
<td><strong>Total Volume</strong></td>
<td><strong>112 mL/kg</strong></td>
<td><strong>24 mL/kg</strong></td>
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