MINNESOTA POISON CONTROL SYSTEM

CHANGES TO N-ACETYLCYSTEINE (NAC) REGIMEN FOR ACETAMINOPHEN TOXICITY

Nationwide there has been a push towards simplifying NAC treatment for acetaminophen toxicity.

Q: What will the Minnesota Poison Control System be recommending?

A: 200 mg/kg IV NAC in 500 mL D5W over 4 hours, followed by 100 mg/kg IV NAC in 1000 mL D5W over 16 hours. Maximum dosing weight of 100 kg.

Q: Are there changes to NAC discontinuation criteria?

A: Yes – stop NAC once:

- The patient is clinically well
- APAP <10 mcg/mL
- INR <2
- Transaminase criteria
  - If peak AST <1000 IU – AST normal for patient or decreasing if elevated
  - If peak AST >1000 IU – AST has decreased at least 25% from peak and ALT has peaked

Q: What evidence is available to support this change?

A: There have been several studies worldwide looking at effectiveness of 2-bag NAC as well as reduction in adverse drug reactions.

<table>
<thead>
<tr>
<th>Study*</th>
<th>Primary Outcome</th>
<th>Secondary Outcomes</th>
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<tbody>
<tr>
<td>SNAP Trial1</td>
<td>Reduction in vomiting, aOR = 0.26 (97.5% CI: 0.13 – 0.52; p&lt;0.0001)</td>
<td>Reduction in anaphylactoid reactions, aOR = 0.23 (97.5% CI: 0.12 – 0.43; p&lt;0.0001)</td>
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<td>Simplification of standard 3bag NAC2</td>
<td>Fewer non-allergic anaphylactic reactions (4.3% vs 10%, p = 0.02, OR 2.5, 95% CI 1.1–5.8)</td>
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<td>A prospective observational study of a novel 2-phase infusion for NAC3</td>
<td>Reduction in frequency of adverse reactions (absolute difference 20%; 95% CI: 13–28%; p &lt; 0.0001)</td>
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<tr>
<td>2NAC study4</td>
<td>No difference in acute liver injury, difference 2% (95% CI: -9.12-5.36%)</td>
<td>Reduction in cutaneous and systemic reactions to NAC, difference 5.8% (95% CI: 4.0-7.6%)</td>
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*Please refer to each study for NAC regimens used and additional information.

References: