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High Dose, Variable Length, N-acetylcysteine (HINAC) Therapy for Late-presenting Acetaminophen Poisoning

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Introduction:
Two previous studies have demonstrated a decreased mortality from 58-80% to 37-52% for patients with late-presenting acetaminophen poisoning who were treated with Prescott’s N-acetylcysteine protocol. Since 1998, we have utilized a high dose, intravenous, variable length, N-acetylcysteine (HINAC) regimen for patients with acetaminophen poisoning.

Objective:
To describe our clinical experience of HINAC therapy for the treatment of late-presenting acetaminophen-poisoned patients.

Methods:
A retrospective, observational chart review of an institutionally approved HINAC protocol from 1998 to 2003 at two toxicology centers for patients with late-presenting acetaminophen poisoning. Inclusion criteria included HINAC administration >24 hours post-ingestion with detectable acetaminophen levels at >24 hours and/or initial transaminases twice the upper limit of normal with history of >8gms of ingested acetaminophen. Patients were excluded by inadequate data, dosing deviation from HINAC protocol >25%, and chronic ingestion (>2 ingestions, separated by >8 hours). Our primary outcome was death; secondary outcomes included liver failure (defined by transaminases >100 U/L), King’s College criteria for poor prognosis and anaphylactoid reactions. Outcomes were compared to previously published NAC regimens.

Results:
Seventy-four patients met inclusion criteria. Forty-seven had detectable acetaminophen levels with median 80.5 and range 2-516 mcg/ml. Forty-five patients had peak AST>1000 U/L. Median peak AST was 2756 U/L and range 18-23470 U/L. Fourteen patients met at least 1 King’s College criteria and there were 5 deaths (2 non-acetaminophen). Four patients had anaphylactoid reactions.

Conclusions:
Patients with late-presenting acetaminophen poisoning who are treated with HINAC have decreased mortality compared to previous studies (p<0.0001).