

DNP can produce life threatening hyperthermia and hypercapnia, with consequent metabolic and neurologic effects. Death can occur within hours.

Toxicity / Risk Assessment

DNP is a cellular poison that uncouples oxidative phosphorylation. There is no safe dose.

Severe toxicity and fatalities typically occur at doses between 10-20 mg/kg but can be lower.

Sources: unlicensed weight loss & bodybuilding products (available as powder/tablet/capsule)

Clinical features:

- Rapid onset of hyperthermia is hallmark
- Early features include tachycardia, agitation, shortness of breath, diaphoresis.
- Hyperthermia contributes to multiorgan failure, hyperkalaemia and rhabdomyolysis, which may progress rapidly to shock, coma, seizures and cardiac arrest.

Management

Discuss ALL exposures early with a Clinical Toxicologist. TIME CRITICAL EMERGENCY

Decontamination: 50g activated charcoal (AC) orally within 2 hours of deliberate self-poisoning. Intubated patients: (regardless of time post ingestion) via NG/orogastric tube after confirmation of correct placement.

Hyperthermia: Active cooling measures should be initiated early in all symptomatic patients or prior to hyperthermia developing if there has been a deliberate overdose. Initially this may include clothing removal, misting/fanning, cold IVF, ice packs to axilla/groin. If T >38°C, initiate aggressive cooling measures with intubation & paralysis, cooling pads, and consideration of invasive cooling with CRRT/VA- ECMO (additional benefit of CO₂ removal), with heating turned off & packed ice around returning lines.

Hypercapnia: Hyperventilation & massive tidal volumes may be required to manage the profound hypercapnia caused by DNP, aiming towards physiological parameters and seeking to avoid respiratory acidosis. VA-ECMO & ECCO₂R may be considered.

Agitation/Delirium: Diazepam 5-20mg IV. Low threshold to manage with intubation and ventilation

Seizures: Diazepam 5-10mg IV every 5-10mins

Hyperkalaemia/ rhabdomyolysis: Manage along conventional lines

Antidotes/Enhanced Elimination:

There are no antidotes/enhanced elimination techniques. No role for dantrolene.

Disposition

- All exposures require 24 hours of observation to ensure symptoms do not evolve.
- Symptomatic patients following DNP exposure should be managed in an ICU environment