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Public Health England

DNP (2,4 dinitrophenol) toxicity

Actions

1. NHS frontline staff should remain vigilant for cases of DNP poisoning
2. Clinicians should note and act in accordance with the clinical management advise in this letter when patients who are suspected of taking DNP are encountered

Action by recipients:

To note the contents, cascade to relevant departments and apply

Hospitalisation and deaths linked to consumption of 2,4-dinitrophenol (DNP): rapid treatment required in cases of suspected DNP poisoning

DNP is a toxic industrial chemical that is unfit for human consumption and illegal for use in foodstuffs. Despite best efforts to remove DNP-containing products from sale, they are still available and may be used by people trying to alter their appearance, such as body builders and those attempting to achieve rapid or extreme weight loss, including some who are vulnerable.

Prior to 2012, enquiries to the National Poisons Information Service (NPIS) about cases of DNP toxicity were rare, but the number of cases referred, and documented fatalities, have increased sharply since then. By the end of March 2019, there have been 120 separate episodes of systemic DNP exposure discussed with the NPIS since 2007 including 117 discussed since 2012. The majority involved younger adults, males more often than females. During 2018 the NPIS recorded the highest number of DNP exposed cases (20) and DNP related deaths (6) since 2015 and there was also an increase in accesses from health care professionals to information about DNP held on the NPIS website TOXBASE.

DNP is usually sold as a yellow powder, sometimes in capsule form, and is marketed as a ‘fat burner’ or weight loss supplement. It may be mixed with ‘bulking agents,’ so the dose of DNP may not be apparent to users which, coupled with the cumulative effect of subsequent doses, can significantly increase the risk to health. Suppliers of DNP target chatrooms on social media and may lead discussions on so-called ‘safe’ dosage. DNP, however, is highly toxic, there is no defined ‘safe’ dose and the chemical should not be consumed under any circumstances.

Clinical features

Clinical features of DNP poisoning include fever, dehydration, thirst, flushed skin, sweating, dizziness, nausea, vomiting, abdominal pain, agitation, restlessness, confusion, headaches, rapid breathing and a rapid or irregular pulse. In severe cases hyperpyrexia, seizures, coma, muscular spasms and death may occur despite optimum medical care. Toxic effects are more common when higher doses have been consumed.

Consuming lower amounts over longer periods can cause cataracts and skin lesions, and affect the heart, blood and nervous system.

Clinical management

Any individuals thought to have consumed DNP or considering its use should be advised of the risks. Health professionals dealing with individuals suspected of consuming DNP should advise them to discontinue use immediately and obtain advice on clinical management from the National Poisons Information Service (NPIS) by reference to TOXBASE (www.toxbase.org).

All patients with features suggesting DNP toxicity should be referred to hospital immediately for assessment and observation and all symptomatic cases should be discussed with the NPIS by phone (0344 892 0111).

Further information

Health professionals presented with any product that is suspected of containing DNP should immediately contact their local police station, who have procedures in place to manage any find of DNP.



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