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LETTER TO THE EDITOR

Serious health problems after use of a dietary supplement for weight-loss and sports enhancement

To the Editor:

Dietary supplements are widely available over the counter as well as through the internet. These products often contain substances which are not mentioned on the label and may cause undesirable adverse effects or even serious health threats. Products intended for losing weight, increasing energy and athletic performance are notorious for this.^{1–3}

The Dutch National Poisons Information Centre (DPIC) received a total of 11 information requests between June 2009 and June 2013 regarding one dietary supplement used for weight loss and sports enhancement. The supplement was sold under the name "Iomax" and most users reported moderately severe sympathomimetic intoxication after use according to the instructions on the label. After occasional reports in June 2009, September 2011 and May 2012, the number of incidents increased from November 2012 onwards, rising to five inquiries in the first 6 months of 2013. Users purchased the product through friends or via a cell phone number provided on internet message boards. When browsing the internet no freely accessible website was found where this dietary supplement could be directly ordered. Clearly this is a black market product with unknown

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Our patients reported health effects shortly after they started taking the product, even with as little as half a capsule. Because of the occurrence of health complaints at the recommended dose, we would like to draw attention to the health risks of products like this.

Data on all cases of iomax use, reported to the DPIC until the 1st of July 2013, are shown in Table 1. No drugs were consumed concomitantly in these cases.

In Cases I and J we were able to retrieve samples of the capsules for analyses. These were performed by the National Institute for Public Health and the Environment (RIVM). The capsules had no imprint and contained a yellow or light-yellow powder. Analysis by UPLC-QTOF-MS/MS revealed 120 mg of amphetamine per capsule in Case I and 100 mg of amphetamine in Case J. In addition, contaminants were determined. One of the most prominent contaminations was di-(beta-phenylisopropyl)-amine (DPIA). DPIA is a common adulterant of amphetamine and being a close analogue to amphetamine could therefore have similar pharmacological activity.^{4,5} A urine sample from the patient from Case F revealed an amphetamine-concentration of >2000 mcg/L. This sample was taken the day after use of Iomax and hospitalisation

Table 1. Data on all cases of Iomax use between June 2009 and June 2013 reported to the DPIC.

Case	Month of inquiry	Gender	Age and weight	Amount of Iomax taken	Reported symptoms
A	06-2009	F	22 v – u.w.	unknown	collapse
В	09-2011	F	Adult – u.w.	1st use, 3 capsules at once	nausea, vomiting, headache
С	05-2012	М	31 y - 100 kg	1st use, 1 capsule	"feeling ill", sweating, chest pain
D	11-2012	F	adult – u.w.	chronic use, 1 capsule a day, duration unknown	palpitations, excitation, sweating
E	11-2012	F	adult – u.w.	1st use, 1 capsule	vomiting, anxiety, cold hands
F	11-2012	F	adult – 100 kg	1 capsule a day for the last 3 days	nausea, headache, dizziness, chest pain, tachycardia (100–120 bpm), dyspnoea, hyperkinesis
G	02-2013	М	26 y - 80 kg	1 capsule a day for the last 2 days	chest pain, mild tachycardia (100 bpm), mild hypertension (150/100 mmHg)
Н	04-2013	F	adult	0.5 capsule a day for the last 15 days	headache, anxiety, sweating, chattering teeth, insomnia
Ι	05-2013	F	42	1st use, 0.5 capsule	nausea, vomiting, abdominal pain, anxiety, sweating, chest pain, hyperventilation, dyspnoea
J	06-2013	F	27	1 capsule a day for the last 4 days	nausea, palpitations, tachycardia
Κ	06-2013	М	25	1 capsule before a boxing match	nausea, vomiting, headache, palpitations, tachycardia (135 bpm), tachypnoea, muscle rigidity

u.w., unknown weight.

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of the patient. A blood sample from the patient from Case I, taken approximately 13 hours after ingestion and analysed by the hospital pharmacy, showed an amphetamine concentration of 8.8 mcg/dL.

The amount of amphetamine found in the two samples retrieved (100–120 mg per capsule) is comparable to the street dose taken by drug-users, which is around 50–200 mg in a single oral dose.^{6,7} The toxic dose of amphetamine varies widely. The severity of effects depends not only on the dose consumed, but also on the environmental conditions and genetic and physiological characteristics of the consumer. The use of amphetamine can lead to hyperthermia, neurotoxicity, hepatotoxicity, nephrotoxicity and cardiotoxicity.⁶

Products on the Dutch market that pose a possible health-threat are actively reported by the DPIC to the Netherlands Food and Consumer Product Safety Authority (NVWA). The NVWA posted a warning for the public on their website and encouraged users to report adverse effects.⁸ Clearly a good cooperation between Poison Centers, laboratories and enforcement authorities is important for the rapid identification and quantification of substances and the subsequent risk estimation and management. Risk communication to the public can be an important tool in reducing public health impact of unsafe consumer products.

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Declaration of interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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