EDORIUM Journals

J Case Rep Images Pediatr 2018;1:100002Z19CG2018.
www.edoriumjournals.com/ej/crj/jcrip

CASE REPORT PEER REVIEWED | OPEN ACCESS

Dangerous dieting – Mexican diet pills and T3 thyrotoxicosis

Carrie Leslie Graves, Ron Samuel Newfield

ABSTRACT

Introduction: Non-FDA approved diet pills may be dangerous to one's health. There is limited literature on the effect of diet pills on thyroid hormone levels and related symptoms. Case Report: A 15-year-old female presented to her physician with a 2-day history of nausea, weakness, shakiness, anxiety, and anterior neck soreness without dysphagia. She was admitted for tachycardia, with pulse up to 150 beats per minute and elevated blood pressure. EKG showed sinus tachycardia. Urine toxicology was positive for benzodiazepines. Labs showed a suppressed TSH <0.03 uIU/mL, normal FreeT4, and high sedimentation rate of 46 mm/hr (0-20). When T3 level returned, it was very elevated at 776 ng/dL (84-179). Thyroid antibodies were negative. Tachycardia improved with propranolol. She later admitted to taking two diet pills known as Redotex®, banned by the US FDA. Redotex®contains 75 mcg tri-iodothyronine, 50 mg norpseudoephedrine, 0.36 mg atropine, 8 mg diazepam, and 16.2 mg aloin. A thyroid scan was obtained showing decreased uptake. Her overall presentation was most consistent with exogenous thyroid hormone intoxication. We would have expected a higher and thyrotoxic T4 level if due to subacute thyroiditis. T3 level dropped to 79 ng/dL within five days, also supporting acute intoxication. Conclusion: Redotex® diet pills can cause immediate, profound and possibly life-threatening symptoms with even two doses. These pills contain a supra-therapeutic dose of T3, and are combined with stimulants that may exacerbate the thyrotoxic effects of T3, whereas benzodiazepines can mask some symptoms.

Keywords: Intoxication, Pediatric, Side effect, Thyrotoxicosis

How to cite this article

Graves CL, Newfield RS. Dangerous dieting – Mexican diet pills and T3 thyrotoxicosis. J Case Rep Images Pediatr 2018;1:100002Z19CG2018.

Article ID: 100002Z19CG2018

****

doi: 10.5348/100002Z19CG2018CR

Carrie Leslie Graves[1], Ron Samuel Newfield[2]

Affiliations: [1]Fellow, Pediatrics and Pediatric Endocrinology, University of California San Diego and Rady Children's Hospital, San Diego, CA, USA; [2]Professor, Pediatrics and Pediatric Endocrinology, University of California San Diego and Rady Children's Hospital, San Diego, CA, USA.

Corresponding Author: Ron Samuel Newfield, MD, MC 5103, 3020 Children's Way, San Diego, CA, USA 92123; Email: rnewifeld@ucsd.edu

Received: 24 January 2018
Accepted: 04 April 2018
Published: 20 April 2018

INTRODUCTION

It is known that non-FDA approved diet pills may be dangerous to one's health [1, 2]. Some of these products may be purchased outside of the United States, as described here and by others [2]. We feel that it is important for health care workers to be aware of the potential adverse effects of certain diet pills, like Redotex®, that we describe and about which the FDA has posted an alert [3].

CASE REPORT

A 15-year-old previously healthy Hispanic female, presented to her primary physician with a two day history of nausea, weakness, shakiness, anxiety, and anterior neck soreness, without dysphagia. She had been at a camp earlier that week and was sent home early because of her symptoms. Her primary physician sent her to the emergency department for evaluation of tachycardia. On admission her pulse ranged between 120 and 155 beats per minute (BPM), and blood pressure was up to 126/81 mmHg (systolic blood pressure > 95th percentile). An electrocardiogram (EKG) showed sinus tachycardia. Urine toxicology was positive for benzodiazepines only. Labs showed a suppressed TSH <0.03 uIU/mL, and normal range Free T4 of 0.92 ng/dL (reference range 0.71-1.85). Total T3 level was pending upon admission. Sedimentation rate (ESR) was elevated at 46 mm/hr (reference range 0-20). She was started on propranolol 20 mg every 8 hours, and her tachycardia improved (pulse between 105 to 110 BPM).

She received a total of five doses of propranolol over a span of two days. Although she initially denied any ingestion, she later admitted to taking two pills of a weight loss drug known as Redotex®, purchased in Mexico. She took one pill a day, for two days prior to coming to the emergency room. These pills are banned by the US FDA, and contain 75 mcg synthetictri-iodothyronine (T3), 50 mg norpseudoephedrine, 0.36 mg atropine, 8 mg diazepam, and 16.2 mg aloin (a stimulant-laxative). When her T3 level returned, it was markedly elevated at 776 ng/dL (reference range 84-179). Thyroglobulin antibodies, anti-TPO, and TSI antibodies were negative. Given her elevated ESR and neck soreness concerning for subacute thyroiditis, a thyroid scan was obtained showing decreased uptake of 4.2% and 5.7% at 5 and 22 hours, respectively. However, we would have expected a higher thyrotoxic T4 level if due to subacute thyroiditis. Her T3 level dropped from 776 ng/dL to 79 ng/dL within five days, also arguing against subacute thyroiditis and supporting her acute intoxication, as the half-life of T3 is about one day. The only treatment she received was a short course of propranolol for the first two days of her hospitalization. A thyroglobulin level would have been helpful in differentiating the two conditions, but was not run by the lab with her thyroglobulin antibodies. Once the T3 level normalized, the TSH was no longer suppressed, and the TSH recovered to 0.53 uIU/mL.

DISCUSSION

This case illustrates that Redotex® diet pills appear to cause immediate, profound and possibly life-threatening symptoms with even a brief exposure to as little as two doses, as the patient we describe said she took. Such low uptake may be consistent with subacute thyroiditis or exogenous thyroid hormone intoxication [4]. These pills are reported to contain a supra-physiologic dose of T3, and are combined with norpseudoephedrine and atropine, that may exacerbate the thyrotoxic effects of T3 in terms of hypertension and tachycardia, respectively. In contrast, benzodiazepines contained in Redotex® can mask some of those symptoms. Redotex® was banned by the FDA, but it is hard to enforce a ban on such products, as they can be purchased in Mexico or online.A recent report about Redotex® listed many side effects, some of which can be due to thyrotoxicosis [5], but this was not examined biochemically.

CONCLUSION

Thyrotoxicosis in the absence of goiter should raise suspicion of intoxication. Although diet pills such as Redotex® are banned in the US, they remain in circulation. These pills contain a supra-physiologic dose of T3, and even a short exposure can result in thyrotoxicosis that can be life threatening.

REFERENCES

1. Yen M, Ewald MB. Toxicity of weight loss agents. J Med Toxicol 2012 Jun;8(2):145–52.
2. Akinyemi E, Bercovici S, Niranjan S, Paul N, Hemavathy B. Thyrotoxic hypokalemic periodic paralysis due to dietary weight-loss supplement. Am J Ther 2011 May;18(3):e81–3.
3. Import Alert 66-35. Detention without physical examination of redotex and other diet pills from Mexico. 2015. [Available at: http://www.accessdata.fda.gov/cms_ia/importalert_185.html]
4. Polak M, Van Vliet G. Disorders of the thyroid gland. In: Sarafoglou K, Hoffmann G, Roth K, editor. Pediatric Endocrinology and Inborn Errors of Metabolism. US: McGraw-Hill Companies; 2009. p. 355–82.
5. Galicia-Quintanar C, Fernandez del Valle-Laisequilla C, Soto-Molina H, Lara-Padilla E, Huerta-Cruz C, Gerardo Reyes-Garcia J. Adverse events reactions reported with the use of a fixed-dose combination of nor-pseudoephedrine, triiodothyronine, atropine, aloin and diazepam in obese Mexican patients. J Pharmacovigil 2015;3:185.

****

Author Contributions

Carrie Leslie Graves – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Ron Samuel Newfield – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor of Submission
The corresponding author is the guarantor of submission.

Source of Support
None

Consent Statement
Written informed consent was obtained from the patient for publication of this case report.

Conflict of Interest
Authors declare no conflict of interest.

ABOUT THE AUTHORS

Article citation: Graves CL, Newfield RS. Dangerous dieting – Mexican diet pills and T3 thyrotoxicosis. J Case Rep Images Pediatr 2018;1:100002Z19CG2018.

Carrie Leslie Graves is Pediatric Endocrinology fellow at the Department of Pediatric Endocrinology, Rady Children's Hospital, University of California San Diego, San Diego, CA, USA. She earned the undergraduate degree of B.S. in Biology from Walla Walla University, Walla Walla, WA, USA and her M.D. postgraduate degree from Loma Linda University, Loma Linda, CA, USA.
Email: cgraves@ucsd.edu

Ron Samuel Newfield is a Clinical Professor of Pediatrics and a senior attending physician in Pediatric Endocrinology at Rady Children's Hospital, University of California San Diego, San Diego, CA, USA. He has completed his fellowship in pediatric endocrinology at Cornell in New York Hospital, and has been in practice for over 20 years. Dr Newfield has interest in thyroid disorders and thyroid cancer, among other topics. He has published close to 50 manuscripts, and has been the PI on multiple clinical research protocols in the areas of type 1 and type 2 diabetes, and growth hormone.
Email: rnewfield@ucsd.edu