CHEST Annual Meeting 2017
TORONTO CANADA October 28 - November 1

Critical Care

SESSION TITLE: Poisoning and Drug Overdose 1
SESSION TYPE: Affiliate Case Report Poster
PRESENTED ON: Tuesday, October 31, 2017 at 01:30 PM - 02:30 PM

Thyrotoxicosis Out of the Blue: Jod-Basedow Phenomenon

Erjia Bao* Supriya Gupta Jayanth Keshavamurthy and Ankur Sharma Medical College of Georgia at Augusta University, Duluth, GA

INTRODUCTION: The advent of advanced radiologic studies and interventions has ushered in an era of unprecedented iodine exposure in the form of iodinated contrast media (ICM). A typical dose of intravenous (IV) ICM can deliver an acute iodide load of several hundred thousand times the daily recommended amount for adults.[1] Individuals with normal thyroid function are able to tolerate this excess iodine due to the Wolff-Chaikoff effect, an autoregulatory mechanism in which expansion of iodine pool leads to the inhibition of further thyroxine organification,[1] but those with underlying thyroid disease can experience autoregulatory failure when suddenly exposed to a massive iodide load, such as ICM, leading to a pathological increase in the synthesis of thyroid hormone, and eventually may result in thyrotoxicosis. This is known as the Jod-Basedow Phenomenon (JBP).[2]

CASE PRESENTATION: 62-year-old female without prior history of thyroid disease presented to the Emergency Department (ED) with acute-onset chest pain. A computed tomography (CT) angiography with IV contrast was done to rule out pulmonary embolism, and 36 hours later, cardiac catheterization was performed. 3 months later, she presented to the ED with syncope and chest pain. TSH was significantly reduced from baseline, with elevated free and total T3 and T4. Propylthiouracil resulted in normalization of thyroid hormones. Non-contrasted CT of the head and neck demonstrated diffuse enlargement of the thyroid gland (Fig 1), and nuclear radioiodine scan 6 months later demonstrated a solitary hyperfunctioning nodule (Fig 2).

DISCUSSION: JBP typically presents 2-12 weeks following ICM administration.[2] The most common presenting symptom is tachycardia or exacerbation of pre-existing cardiac disease.[1] Unlike idiopathic hyperthyroidism, radioiodine study demonstrates decreased uptake.[1] Treatment, consisting of antithyroid agents, is directed at inhibiting further thyroid iodine uptake.[2] The diagnosis of JBP in the elderly presents a unique challenge— subclinical hypothyroidism is common in this population; they are also frequently exposed to multiple contrasted studies, but clinical presentation of thyroid derangement is often subtle and nonspecific, with only palpitation, anxiety, and fatigue[1] as signs of impending thyrotoxicosis.

CONCLUSIONS: In the age of increasing reliance on contrasted imaging studies, JBP remains a diagnostic challenge in the elderly. Awareness of cumulative ICM exposure is thus of vital importance, as inadvertent iodide load from multiple contrasted studies or interventions could culminate in thyrotoxicosis without an obvious cause.

Reference #1: van der Molen AJ, Thomsen HS, Morcos SK; Contrast Media Safety Committee, European Society of Urogenital Radiology (ESUR).. Effect of iodinated contrast media on thyroid function in adults. Eur Radiol. 2004 May;14(5):902-7.

Reference #2: Dunne P, Kaimal N, MacDonald J, Syed AA. Iodinated contrast-induced thyrotoxicosis. CMAJ. 2013 Feb 5;185(2):144-7. doi: 10.1503/cmaj.120734.

DISCLOSURE: The following authors have nothing to disclose: Erjia Bao, Supriya Gupta, Jayanth Keshavamurthy, Ankur Sharma

No Product/Research Disclosure Information

DOI: http://dx.doi.org/10.1016/j.chest.2017.08.406

CRITICAL CARE