

# AMIODARONE INDUCED HYPERTHYROIDISM

Kostantinos Papathanasiou, DO<sup>1</sup>, Dale Lent, DO.<sup>2</sup>

1. Family Medicine Residency, UPMC Lititz, Lititz, PA 2. Department of Internal Medicine, UPMC Lititz, Lititz, PA

## INTRODUCTION

Amiodarone is used for long term rhythm control of atrial fibrillation and left systolic dysfunction abnormalities. Amiodarone doses have iodine components, which do pose a risk for patient's developing amiodarone induced hyperthyroidism. There are two types of hyperthyroidism that can occur with amiodarone, type 1 and type 2.

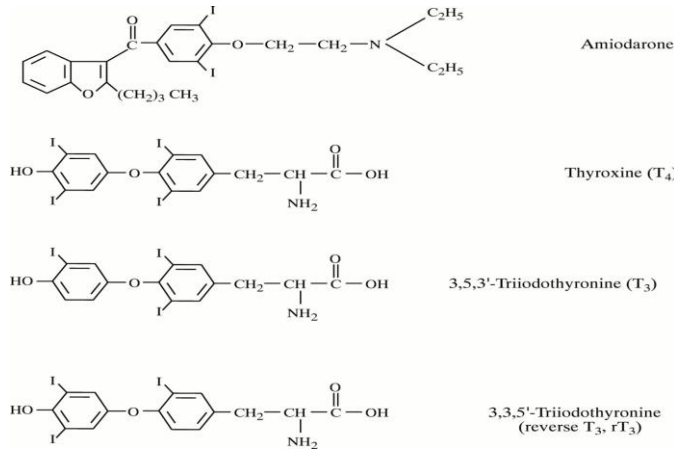
## CASE PRESENTATION

This case study encompasses a 64-year-old male patient with a past medical history of atrial fibrillation treated with amiodarone and congestive heart failure. Patient was admitted to the inpatient service for congestive heart failure and subsequently treated with diuretics. While being treated on the inpatient unit, he continued to be in atrial fibrillation. This led to further investigation on his condition.

## Methods

As standard protocol to his cardiac work up, an x-ray and echocardiogram were ordered. Later on, TSH was checked. Consequently, thyroid ultrasound and interleukin-6 blood level were checked.

## Amiodarone Structure



## Amiodarone Treatment Algorithm

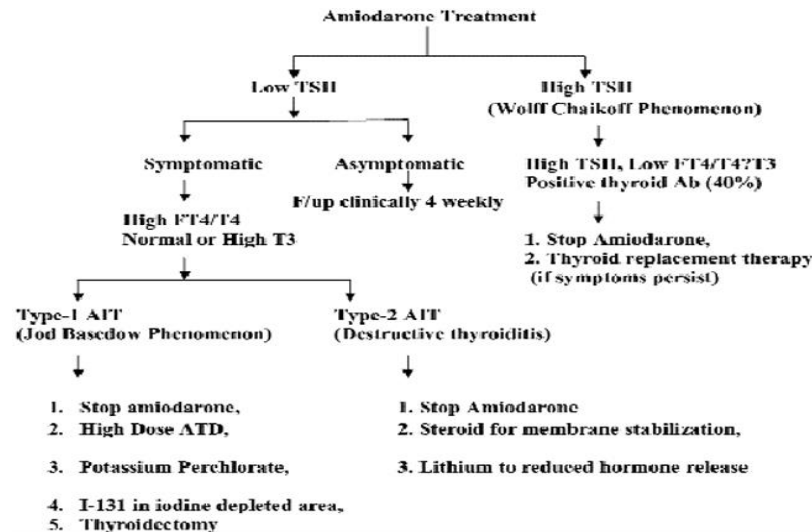


Figure: Algorithm showing management of amiodarone induced thyroid disorders.

## Results

A chest-x ray was taken in the emergency room that showed Perihilar pulmonary vascular congestion with right-sided pleural effusion. EKG in the emergency department was consistent with atrial fibrillation. A transthoracic echocardiogram ordered and showed mild to moderately decreased left ventricular ejection fraction estimated at 40-45% with mild global hypokinesis. Thyroid stimulating hormone was found to be decreased at 0.01. Free T<sub>4</sub> was determined to be elevated at 2.42. Total T<sub>3</sub> was found to be 89.46, which was within normal limits. The outcome was consistent with amiodarone induced hyperthyroidism type 2. This led to an Interleukin-6 lab to be checked which was determined to be elevated at 25.50. Thyroid ultrasound showed moderately enlarged thyroid with heterogeneous echotexture and subjectively normal blood flow on color Doppler.

## Conclusion

Patient was determined to have amiodarone induced hyperthyroidism, which is most likely type 2 in nature. Consequently, amiodarone was discontinued. Patient was placed on 10 mg of Methimazole and continued on a prednisone 20mg daily.

## References

1. Loh K Amiodarone-induced thyroid disorders: a clinical review Postgraduate Medical Journal 2000;76:133-140.
2. JPMA - Journal of Pakistan Medical Association. (n.d.). Retrieved April 2, 2022, from <https://jpma.org.pk/article-details/3305>
3. Tsang W, Houlden RL. Amiodarone-induced thyrotoxicosis: a review. Can J Cardiol. 2009;25(7):421-424. doi:10.1016/s0828-282x(09)70512-4