

Post-cardiac Transplant Lymphocytic Thyroiditis Secondary To Amiodarone Use In The Pre-transplant Period

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Purpose



- Heavy iodine content in Amiodarone is associated with thyroid dysfunction, which may lead to adverse outcomes in cardiac transplant (CT) patients
- Our goal is to study the incidence and predictors of amiodarone-induced Lymphocytic Thyroiditis (LT) in CT patients in a tertiary care transplant center in the United States.

Methods



- We retrospectively reviewed medical records of patients who underwent CT from 03/2010 to 10/2018 (N= 137) at our center.
- Final cohort was divided into two groups- those who developed post-CT LT vs. those who did not. Baseline characteristics were compared between the groups, and predictors of post-CT LT were identified using regression modeling on Stata 15.0.

Results



- The cohort had a mean age of 55.9 years, 80% were male and 89% were Caucasian.
- Incidence of post-CT LT was 10.3% and mean time from transplant to the diagnosis of LT was 26.9 months.

Results

- Patients who developed post-CT LT were similar in demographics and clinical characteristics except for the following:
 - Higher use of amiodarone (53.8% vs 25.7%, $p=0.03$)
 - Higher dose of amiodarone (343 mg vs 253 mg, $p=0.049$)
 - Lower left ventricular ejection fractions (LVEF) (10.9% vs 16.6%, $p=0.03$) before transplant



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Table 1: Comparison of Baseline Characteristics of Patients Who Developed Lymphocytic Thyroiditis versus Those Who Did Not:

Variables	No Thyroiditis Group (N=113)	Thyroiditis Group (N=13)	P
Demographics			
Age, years	56.1 ± 1.3	54.6 ± 3.4	0.35
Male gender	91 (80.5)	10 (76.9)	0.76
Race			0.18
Caucasian	102 (90.3)	10 (76.9)	
African-American	7 (6.2)	3 (23.1)	
Other	4 (3.5)	0	
BMI, kg/m ²	28.8 ± 0.5	31.1 ± 1.5	0.07
Clinical Characteristics			
Atrial fibrillation	47 (42)	9 (69.2)	0.06
Ventricular tachycardia	42 (37.2)	7 (53.8)	0.24
Diabetes	46 (40.7)	4 (30.8)	0.49
Hypertension	68 (60.2)	10 (76.9)	0.24
Hyperlipidemia	71 (62.8)	11 (84.6)	0.12
Renal dysfunction	24 (21.4)	4 (30.8)	0.52
Anemia	22 (19.6)	5 (38.5)	0.12
Smoking status			0.47
Former smoker	68 (60.7)	10 (76.9)	
Current smoker	4 (3.6)	0	
NYHA Class	2.6 ± 0.1	2.8 ± 0.3	0.14
Laboratory Values			
LVEF, %	16.6 ± 0.9	10.9 ± 1.3	0.03
Pro-BNP, pg/mL	4965.3 ± 1164.8	5383.9 ± 3651.5	0.45
TSH, IU/mL	3.5 ± 0.6	3.3 ± 0.9	0.45
Medications			
Amiodarone	29 (25.7)	7 (53.8)	0.03
Amiodarone dose	251.7 ± 24.6	342.9 ± 36.9	0.049
Mexiletine	1 (0.9)	1 (7.7)	0.07
Entresto	1 (0.9)	0	0.74
Beta Blockers	67 (60.9)	7 (58.3)	0.86
ACEi/ARBs	74 (67.3)	10 (83.3)	0.25
Diuretics	77 (70)	8 (66.7)	0.92
Aldosterone antagonists	47 (42.7)	6 (50)	0.63

Continuous variables are expressed as Mean±SE and Categorical as n (%). P value < 0.05 was considered for statistical significance. BMI: Body mass index, NYHA: New York Heart Association, LVEF: Left ventricular ejection fraction, Pro-BNP: Pro brain natriuretic peptide, TSH: Thyroid stimulating hormone, ACEi: Angiotensin convertase enzyme inhibitor, ARB: Angiotensin receptor blocker.

Results



- Univariate regression analysis shows that the following predicted post-CT LT:
 - Use of amiodarone [OR (p) = 3.4 (0.04)]
 - African-American race [OR (p) = 4.4 (0.05)]
 - Lower LVEF [OR (p) = 0.89 (0.046)]

Conclusions



- Incidence of LT in our study was 10.3% and was associated with the use of amiodarone in the pre-transplant period, underpinning the importance of recognizing this side effect of amiodarone in the post-CT period.
- The late incidence of post-CT LT observed in our study leads us to speculate that an undefined immunologic mechanism is involved in this phenomenon.

Disclosures



- None of the authors report any disclosures in relation to the study.