

# Study to Assess the Monitoring of Thyroid Function Test and Liver Function Test Prior to and After Prescribing Oral Amiodarone Therapy

Renukadevi. D, Dr. Harikrishnan, Dr. Becky Maria Biju

Pushpagiri Medical College Hospital, Thiruvalla, Kerala, India

## ABSTRACT

Amiodarone is a class III antiarrhythmic agent; however, its extensive side-effect profile requires careful selection of patients and frequent monitoring. It may cause significant variations in thyroid function (TFT) and liver function tests (LFT). The purpose of the study is to evaluate the performance of baseline liver function test and thyroid function test prior to and after initiating oral Amiodarone therapy. We had done a retrospective descriptive medical record review study initially and a Focus PDCA later to evaluate the quality improvement measures that had been undertaken as the reference of previous study recommendations. The repeated study reveals that there is a significant rise in baseline monitoring and follow-up of liver function and thyroid function tests for patients treated with oral amiodarone therapy after implementing the monitoring protocol and clinical pharmacist intervention.

**KEYWORDS:** LFT (Liver Function Test), TFT (Thyroid Function Test), PDCA (Plan Do Check Act)

**How to cite this paper:** Renukadevi. D | Dr. Harikrishnan | Dr. Becky Maria Biju "Study to Assess the Monitoring of Thyroid Function Test and Liver Function Test Prior to and After Prescribing Oral Amiodarone Therapy" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-8 | Issue-4, August 2024, pp.628-630, URL: www.ijtsrd.com/papers/ijtsrd67191.pdf



IJTSRD67191

Copyright © 2024 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



## I. INTRODUCTION

Amiodarone is a class III antiarrhythmic agent; however, its extensive side-effect profile requires careful selection of patients and frequent monitoring. Due to its marked lipid affinity, it is highly concentrated in tissues and is linked to a number of adverse effects, including thyroid dysfunction. Amiodarone can lead to both hypothyroidism (amiodarone-induced hypothyroidism) and less commonly hyperthyroidism (amiodarone-induced thyrotoxicosis) and relates to high iodine content within the molecule as well as to several unique intrinsic properties of Amiodarone. Amiodarone has the potential to cause mild transaminases to fulminant hepatotoxicity. So it is necessary to monitor both LFT and TFT at regular intervals i.e. before starting, while on and after discontinuing the therapy.

**Aim:** The purpose of the study is to evaluate the performance of baseline liver function test and thyroid function test prior to and after initiating oral Amiodarone therapy.

## Objective:

- To determine the number of patients who were done baseline TFT
- To identify the number of patients who were done baseline LFT
- To ascertain that how many patients were monitored for both LFT and TFT within 6 months of therapy.

## Study Design:

Descriptive retrospective medical record review study

## Study Tool: Checklist

Sl. No.			
Patient Name			
UHID			
Age			
Sex			
Diagnosis			
Therapy starting date			

Duration of therapy			
Baseline LFT done (Yes/No)			
Baseline TFT done (Yes/No)			
LFT monitored within 6 months (Yes/No)			
TFT monitored within 6 months (Yes/No)			

**Methodology:**

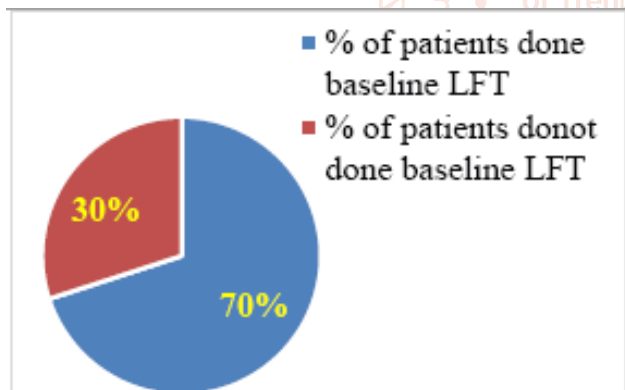
Retrospectively collected the prescription orders of Tab. Amiodarone from patient’s electronic medical records. The data was collected randomly of patients who had been initiated with oral Amiodarone therapy from January 2022 to March 2023. Using an audit form we collected the diagnosis of the patient, oral Amiodarone starting period, the evaluated baseline liver function and thyroid function test done or not and whether it is repeated thereafter.

**Analysis Tool:** Minitab

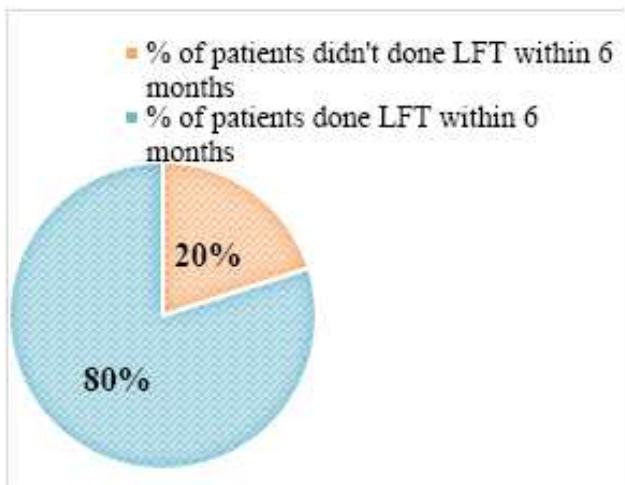
**Result:** Monitoring of liver function test

**Table: 1**

Total no. of patients	No. of patients done baseline LFT	No. of patients didn't check baseline LFT	No. of patients checked LFT within 6 months	No. of patients didn't check LFT within 6 months
50	35	15	40	10



**Fig (a)**

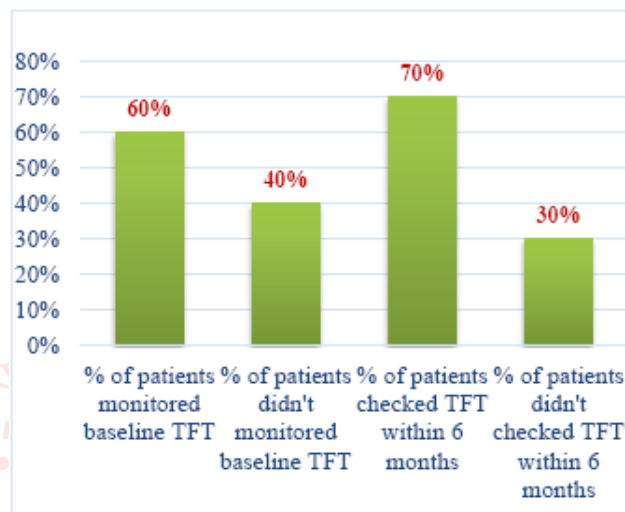


**Fig (b)**

**Monitoring of thyroid function test**

**Table: 2**

Total no. of patients	No. of patients done baseline TFT	No. of patients didn't check baseline TFT	No. of patients checked TFT within 6 months	No. of patients not check TFT within 6 months
50	30	20	35	15



**Fig. (c)**

**Discussion:**

- From the analysis it is evident that,
- 70% and 60% of patients were monitored LFT and TFT prior to starting oral Amiodarone therapy respectively.
  - The patients who were not done the baseline tests were found to be 30 to 40 percentage.
  - Reassessment within 6 months of therapy was done for LFT was 70% of patients and TFT was 80 %.
  - 20-30 % of patients didn't have any follow up for LFT and TFT.

**Conclusion:** This audit reveals that majority of the patients are monitored for liver function test and thyroid function test before and after initiating oral AMIODARONE therapy as it has adverse effects on liver function & thyroid function. The proportion of patients who were not received the recommended baseline assessments was minimal. In addition, the performance of on-going monitoring or reassessment was found to less.

**Focus PDCA**

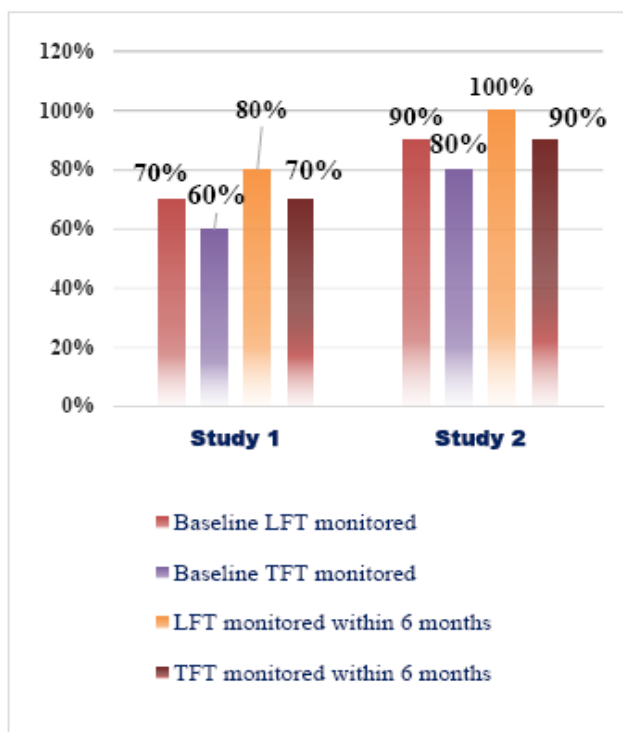
A focus PDCA on this topic was conducted in May 2024 to evaluate the quality improvement measures that had been undertaken as the reference of previous study recommendations. We were randomly assessed on the same parameters of 50 more patients who were prescribed with Tab. Amiodarone from August 2023 to May 2024.

**Findings:**

- The percentage of monitoring of liver function test (LFT) and thyroid function test (TFT) prior to initiating oral Amiodarone therapy was increased to 90 % and 80 % respectively.
- All the patients who were audited, repeated LFT within 6 months of therapy. Only 10 % were not checked TFT within 6 months.
- 70% of patients didn't have any follow after 6 months or discontinuing Amiodarone therapy.

**Table: 3**

Total no. of patients	% of patients done baseline LFT	% of patients done baseline TFT	% of patients checked LFT within 6 months	% of patients checked TFT within 6 months
50	90	80	100	90

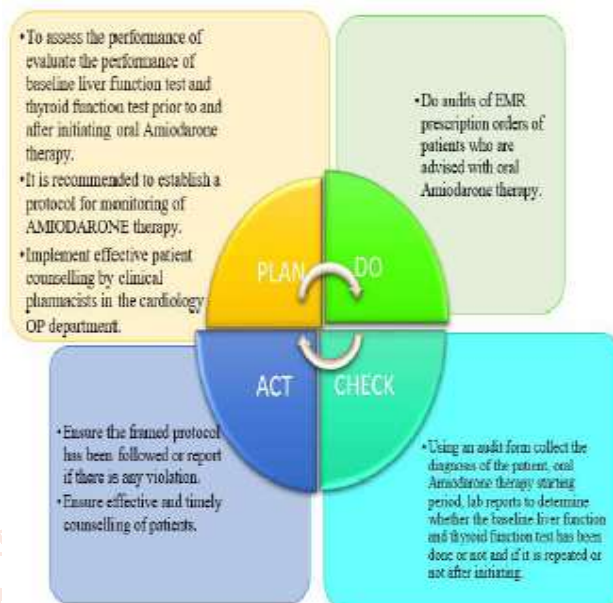


**Fig (d)**

**Conclusion:**

The repeated study reveals that there is a significant rise in baseline monitoring and follow-up of liver

function and thyroid function tests for patients treated with oral amiodarone therapy after implementing the monitoring protocol and clinical pharmacist intervention.



**Fig (e)**

**References:**

- [1] Micromedex
- [2] <https://www.ncbi.nlm.nih.gov/books/NBK548109/> LiverTox: Clinical and Research Information on Drug-Induced Liver Injury
- [3] Luigi Bartalena et al: 2018 European Thyroid Association (ETA) Guidelines for the Management of Amiodarone-Associated Thyroid Dysfunction
- [4] Evaluation and Treatment of Amiodarone-Induced Thyroid Disorders Dorina Ylli, Leonard Wartofsky, Kenneth D Burman The Journal of Clinical Endocrinology & Metabolism, Volume 106, Issue 1, January 2021, Pages 226–236, <https://doi.org/10.1210/clinem/dgaa686>