

# THE ROLE OF IMMUNE STATUS BASED ON LYMPHOCYTE MONOCYTE RATIO IN TREATMENTS RESPONSE OF LOW-RISK DIFFERENTIATED THYROID CARCINOMA PATIENTS WITH HIGH ANTI-THYROGLOBULIN ANTIBODIES PRE- I-131 THERAPY

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## Introduction

Predicting the outcome of therapy, will be challenging in patients with differentiated thyroid cancer (DTC) after total thyroidectomy and high serum levels of anti-thyroglobulin antibodies (ATA), particularly in low-risk patients. Consequently, it is essential to search for alternative predictors that are independent of thyroglobulin (Tg).

Inflammation plays a key role in the initiation, promotion, and progression of cancer, by mediating the interaction of the immune response, influencing the prognosis and response to therapy. Some experts suggest that the lymphocyte-monocyte ratio (LMR) can indirectly reflect the immune status of the host and serve as a predictor of the prognosis of various malignancies.

## Methods

A retrospective observational study of patients histologically proven DTC with high serum levels of ATA pre-therapy who underwent the first I-131 therapy between 2016 and 2020. Low risk stratification criteria were determined by American Thyroid Association guidelines 2015. Immune status based on lymphocyte-to-monocyte ratio (LMR). Early treatment response was determined by presence or absence of residual activity in the thyroid bed 6 months after radioiodine therapy. Logistic regression analysis was performed to assess the association.

## Results

A total of 62 subjects of low-risk DTC patients with high serum levels of ATA pre-therapy.

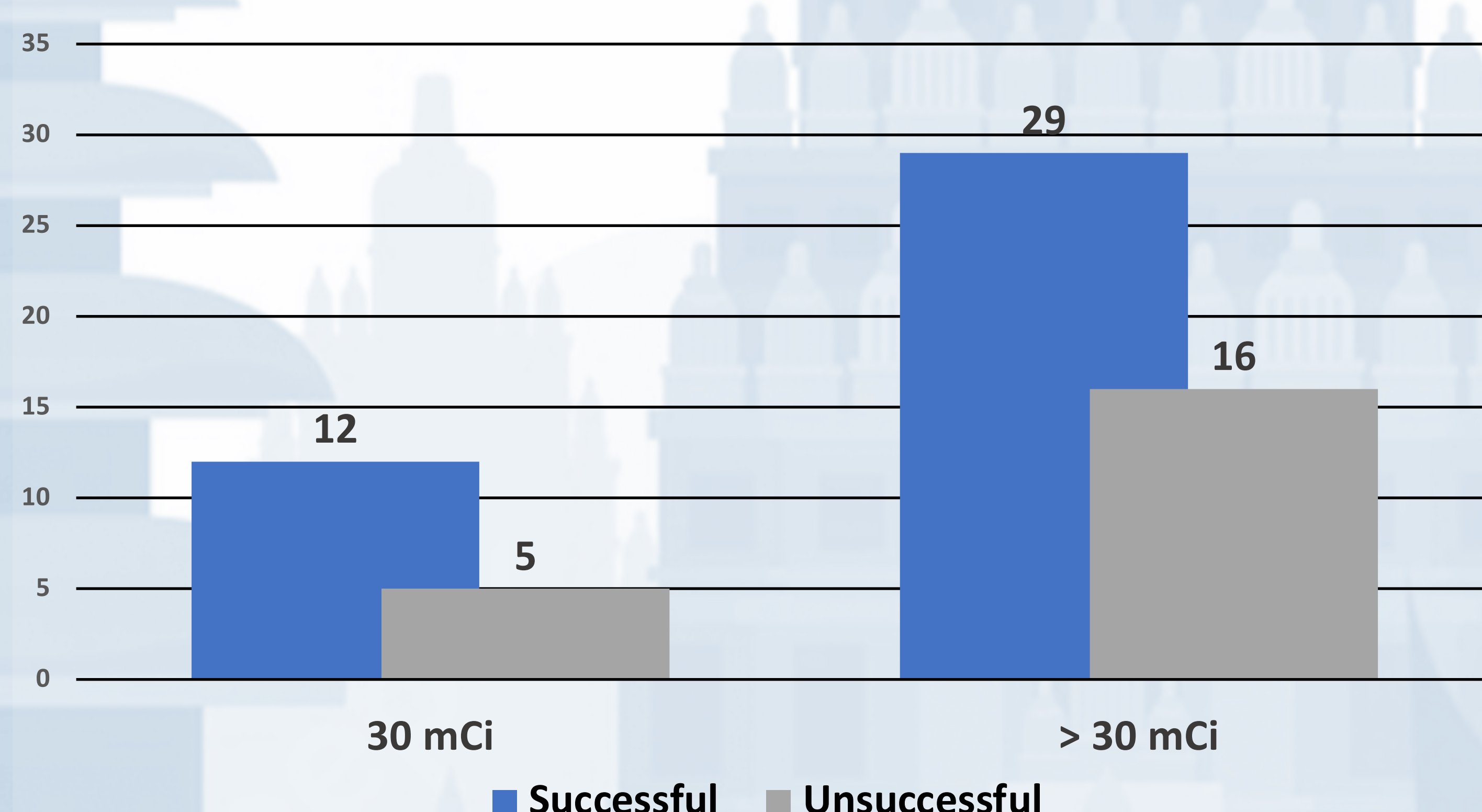


Figure 1. Activities of I-131 and treatment response

	Unsuccessful (n = 21)	Successful (n = 41)	p
Age	45.2 (15.6)	43.1 (14.0)	0.58
Sex			
Male	5	7	0.52
Female	16	34	
TSH (ulu/ml)	51 (0.2;127.5)	51 (0.5;192)	0.28
Thyroglobulin (ng/ml)	9.60 (0.03;251)	1.45 (0.01; 83.1)	0.02
Anti-Thyroglobulin antibodies (IU/ml)	97.2 (26.6; 3695)	79 (30; 3001)	0.26
Thyroid cancer			
Follicular	1	2	0.50
Papillary	20	39	

Table 1. Subjects' characteristic

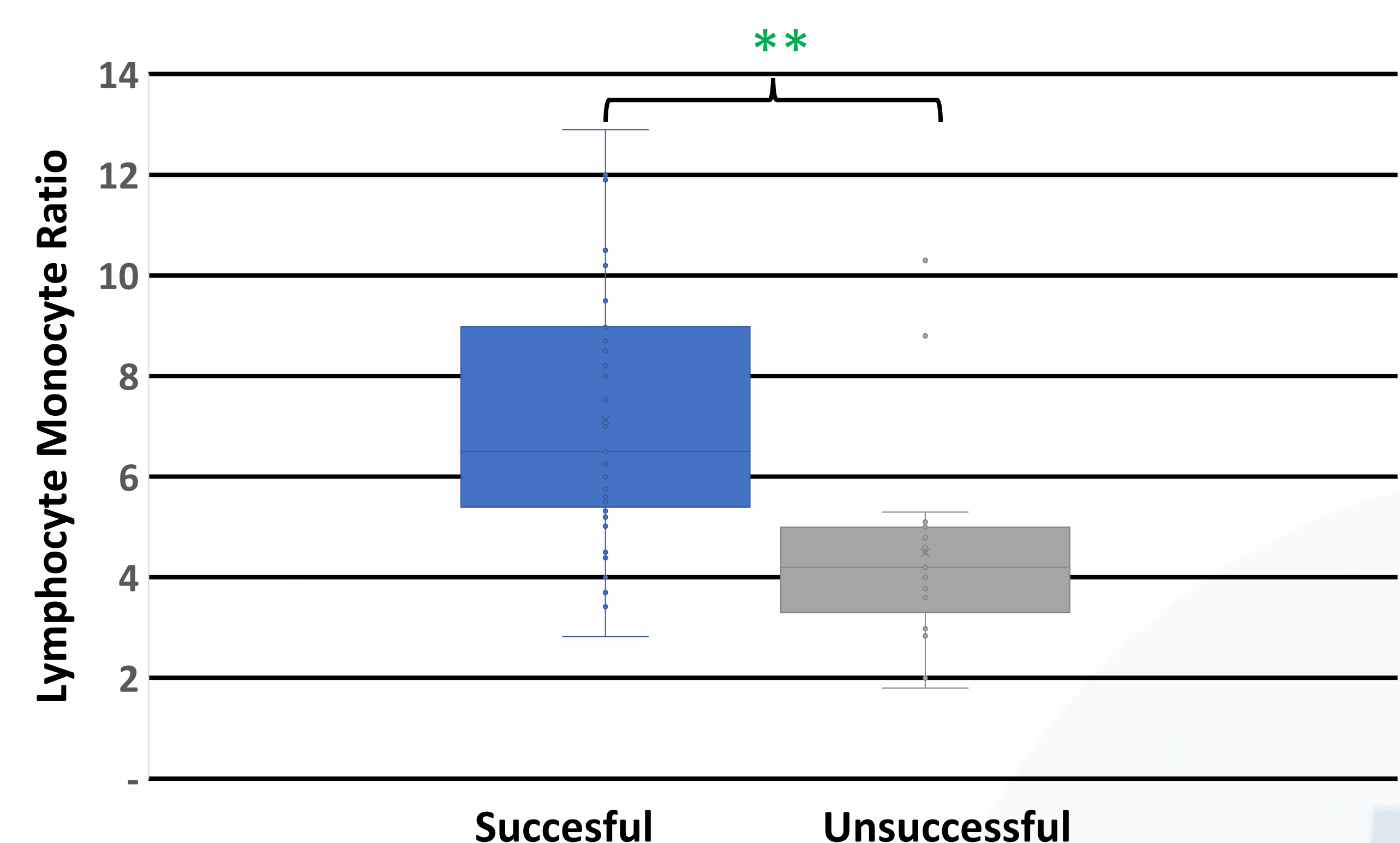


Figure 2. LMR and treatment response

By controlling the confounding Tg. For every 1-unit increase in the LMR, the successful response of first I-131 therapy increased to 0.652. OR: 1.9 (95% CI, 1.264-2.911;  $p = 0.002$ ). Cut off point,  $LMR \geq 6.24$  ( $p = 0.0001$ ).

Variables	$\beta$	SE	Wald	p	OR (95% CI)
LMR	0.652	0.213	9.381	0.002*	1.919 (1.264 - 2.911)
Thyroglobulin	-0.043	0.020	4.579	0.032*	0.958 (0.921 - 0.996)
Constants	0.949	0.416	5.207	0.022	

Table 2. Multivariable Logistics Regression Analysis

## Conclusions

Patients with low-risk DTC after total thyroidectomy who had high serum levels of ATA before I-131 therapy, High LMR were linked to greater success of the first I-131 therapy.