

The Role of Immunity Status Based on Lymphocyte Monocyte Ratio (LMR) in Treatments Response Low-risk Differentiated Thyroid Carcinoma Patients with High Anti-thyroglobulin Antibodies Pre-I131 Therapy



WARMTH
WORLD ASSOCIATION
OF RADIOPHARMACEUTICAL
AND MOLECULAR THERAPY
FOUNDED 2009

Junan Imaniar^{1,2}, Basuki Hidayat¹, Erwin Affandi Soeriadi¹, Hendra Budiawan¹

¹Department of Nuclear Medicine and Molecular Imaging Dr. Hasan Sadikin General Hospital / Faculty of Medicine Universitas Padjadjaran Bandung Indonesia

²Dharmais Cancer Hospital - National Cancer Center Indonesia

Introduction

Patients with differentiated thyroid carcinoma (DTC) after total thyroidectomy with high serum levels of anti-thyroglobulin (anti-Tg) antibodies before I-131 therapy will make it difficult to predict the success of therapy, especially in low-risk patients. So, it is necessary to look for other indicators that do not depend on thyroglobulin. 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

In this observational retrospective single centre study, we reviewed all patients with histologically proven well-differentiated thyroid carcinoma with high pre-therapy serum anti-Tg antibody levels who underwent first I-131 at the Department of Nuclear Medicine, Dr. Hasan Sadikin Hospital Bandung between 2016 and December 2020. As immunity status based on lymphocyte-to-monocyte ratio (LMR). Low risk stratification criteria were determined by ATA 2015. Early treatment response is determined by the presence or absence of residual activity in the thyroid bed 6 months after radioiodine therapy. Logistic regression analysis was performed to assess the association.

	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

Results

A total of 62 subjects of low-risk DTC patients with high pre-therapy serum anti-Tg antibody levels. The median (min;max) LMR in the successful treatment group was 6.5 (2.82;112.9) and the unsuccessful treatment group was 4.2 (1.8;10.3), $p = 0.001$. By controlling the confounding variable, thyroglobulin (Tg). Successful response to the first I-131 therapy increased to 0,652 for every 1 unit increase in the LMR variable. OR value = 1.919 (95% CI; 1.264-2.911). $p = 0.002$.

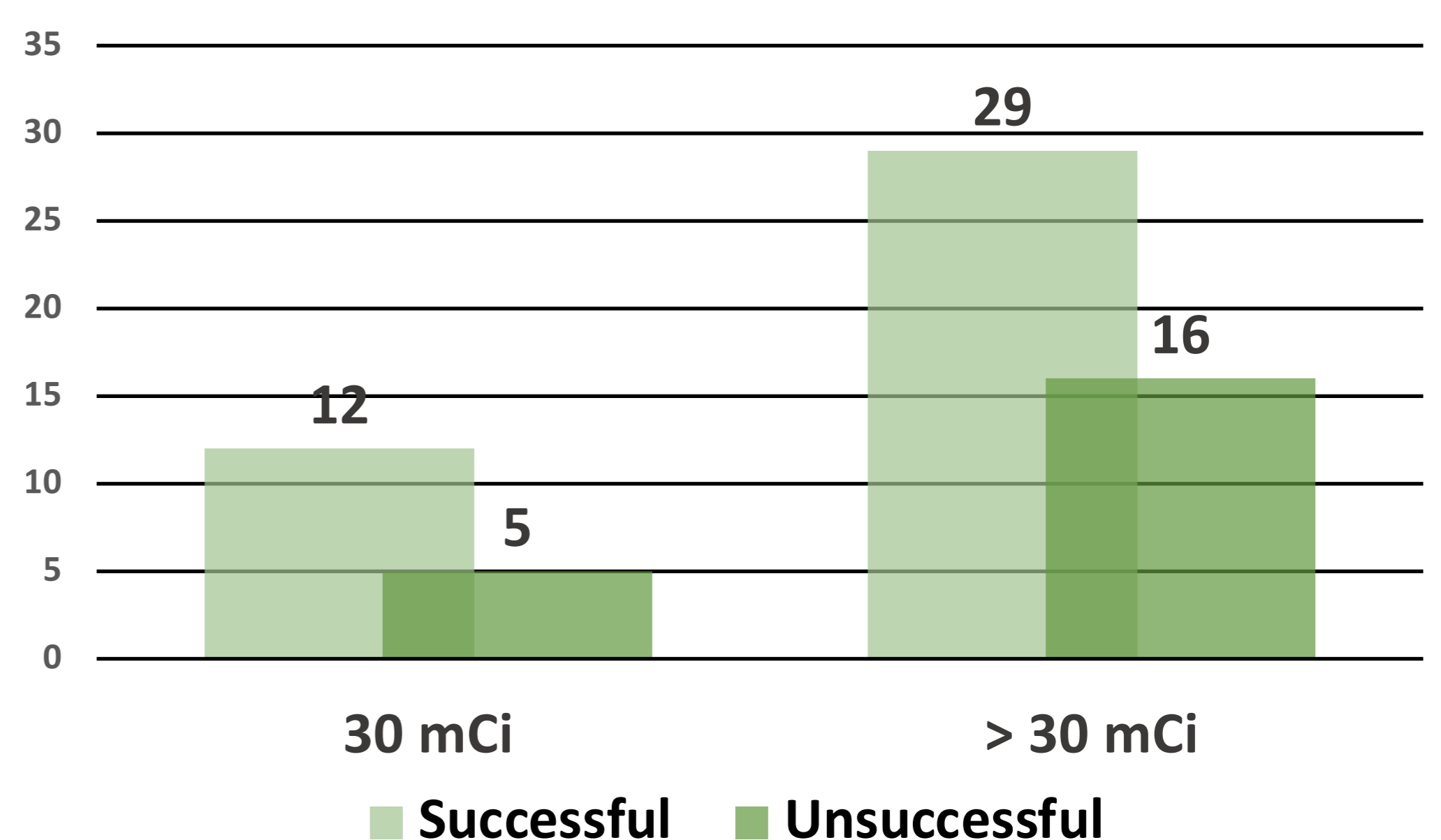


Figure 1. Activities of I-131 and treatment response

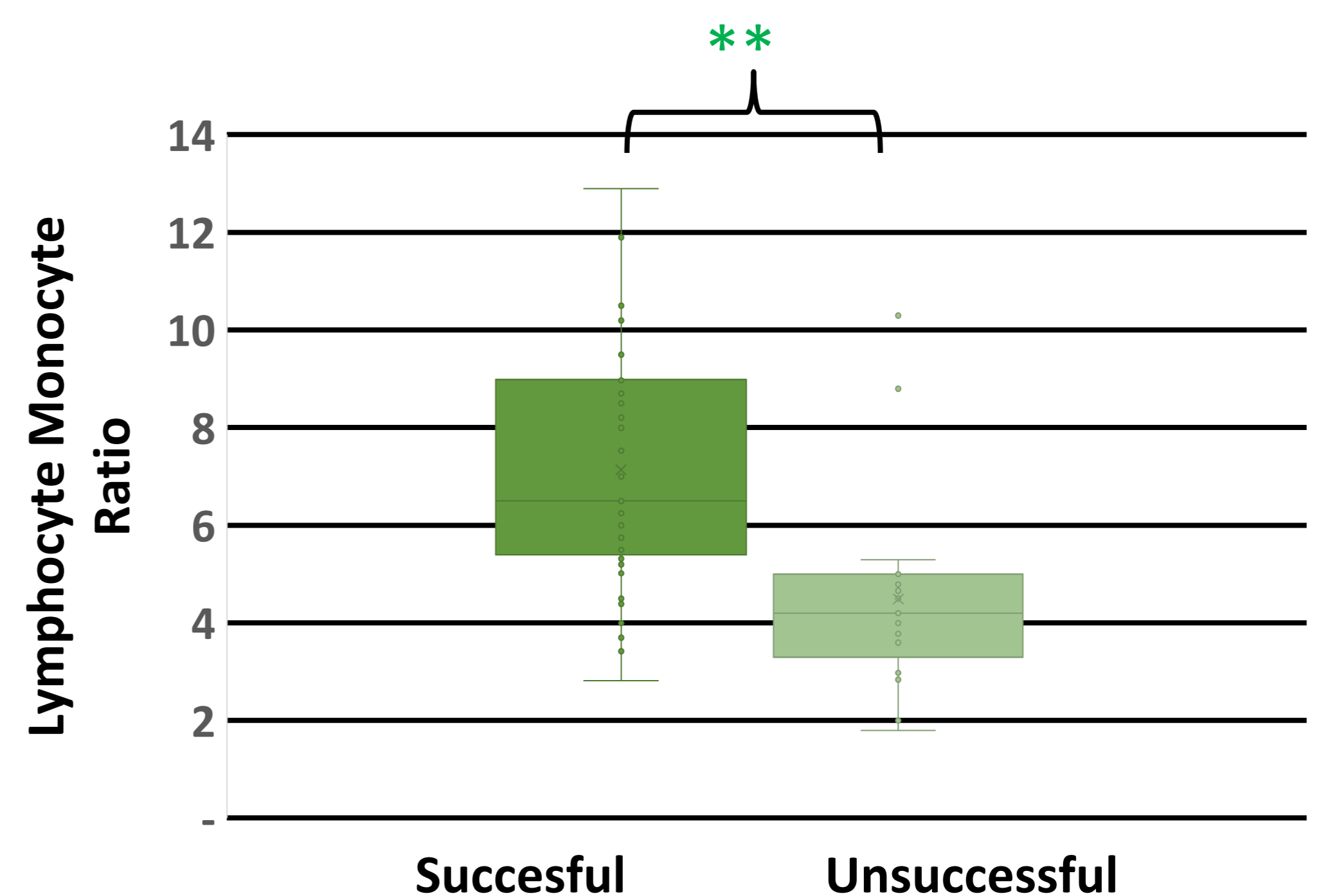


Figure 2. LMR and treatment response

Conclusion

Patients with low-risk DTC after total thyroidectomy, who had high pre-therapy serum anti-thyroglobulin antibody levels, high LMR were associated with higher success of the first I-131 therapy.

Email : junanimaniarpribadi@outlook.com