

# COMPARING THE DIAGNOSTIC PERFORMANCE OF ACR-TIRADS AND BTA U-SCORE IN CLASSIFYING THYROID NODULES: A SINGLE CENTRE RETROSPECTIVE COHORT STUDY

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## INTRODUCTION

The American College of Radiology (ACR)-TIRADS and "British Thyroid Association (BTA)" U-Score are two ultrasound-based scoring systems which aid in stratifying risk of malignancy and selection of nodules for intervention<sup>(1)</sup>. Prior studies comparing both these scoring systems resulted in heterogenous outcomes<sup>(2)</sup>. This study aims to compare the diagnostic performance of ACR-TIRADS and BTA U-score in the detection of malignant thyroid nodules.

## METHODOLOGY

This retrospective study was conducted in University Malaya Medical Centre and included 255 eligible patients who underwent thyroid resection between 2015 and 2020. Two radiologists independently reviewed all ultrasound images and classified the nodules according to ACR-TIRADS and BTA U-score. Discrepancies were arbitrated by a consultant radiologist. The radiologists were blinded to the clinical presentation, previous ultrasound report and histopathology. USG scores were then correlated with histopathology to determine the diagnostic accuracy. Statistical analysis was done using IBM SPSS Version 26.0.

## RESULTS

Malignancy was present in 63 (24.7%) nodules. PTC (n=36, 14.1%) was the most frequent histopathology followed by FTC (n=18, 7.1%). Similar values were seen in diagnostic accuracy of both scoring systems: sensitivity (BTA: 88.9% vs ACR: 84.1%), specificity: (BTA: 29.2% vs ACR: 26.0%), PPV: (55.7% vs 53.2%) and accuracy (BTA: 59% vs ACR: 55.1%). BTA showed higher NPV compared with ACR TIRADS (72.45 vs 62.1% - p value <0.05).

Table 1

Diagnostic Accuracy	BTA U-score	ACR-TIRADS
Sensitivity	88.89%	84.13%
Specificity	29.17%	26.04%
PPV	55.65%	53.22%
NPV	72.41%	62.13%
Accuracy	59.03%	55.08%

Table 2

Diagnostic Test	HPE (Reference Standard)		p-value	
	Benign (Negative) n=192 (%)	Malignant (Positive) n=63 (%)		
BTA	Negative	56 (29.2)	7 (11.1)	0.004
	Positive	136 (70.8)	56 (88.9)	
ACR	Negative	49 (25.5)	12 (19.0)	0.123
	Positive	143 (74.5)	51 (81.0)	

## CONCLUSION

Comparable diagnostic accuracy in the detection of malignant thyroid nodules was seen between ACR-TIRADS and BTA U-score. With the use of an USG scoring system, risk stratification and estimation of malignancy can guide clinical decision-making and avoid unnecessary procedures<sup>(3)</sup>. In clinical practice however, ACR-TIRADS which is a point-based system is more practical and objective.

## REFERENCES

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