

Clinical Implications of the Body Composition Among Old Adults With Hepatocellular Carcinoma Treated With Trans-Arterial Chemoembolization

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INTRODUCTION

The expanding global elderly population has contributed to an increase in hepatocellular carcinoma (HCC) incidence (1,2).

However, there is limited evidence regarding the safety and efficacy of trans-arterial chemoembolization (TACE) for older HCC patients (3,4).

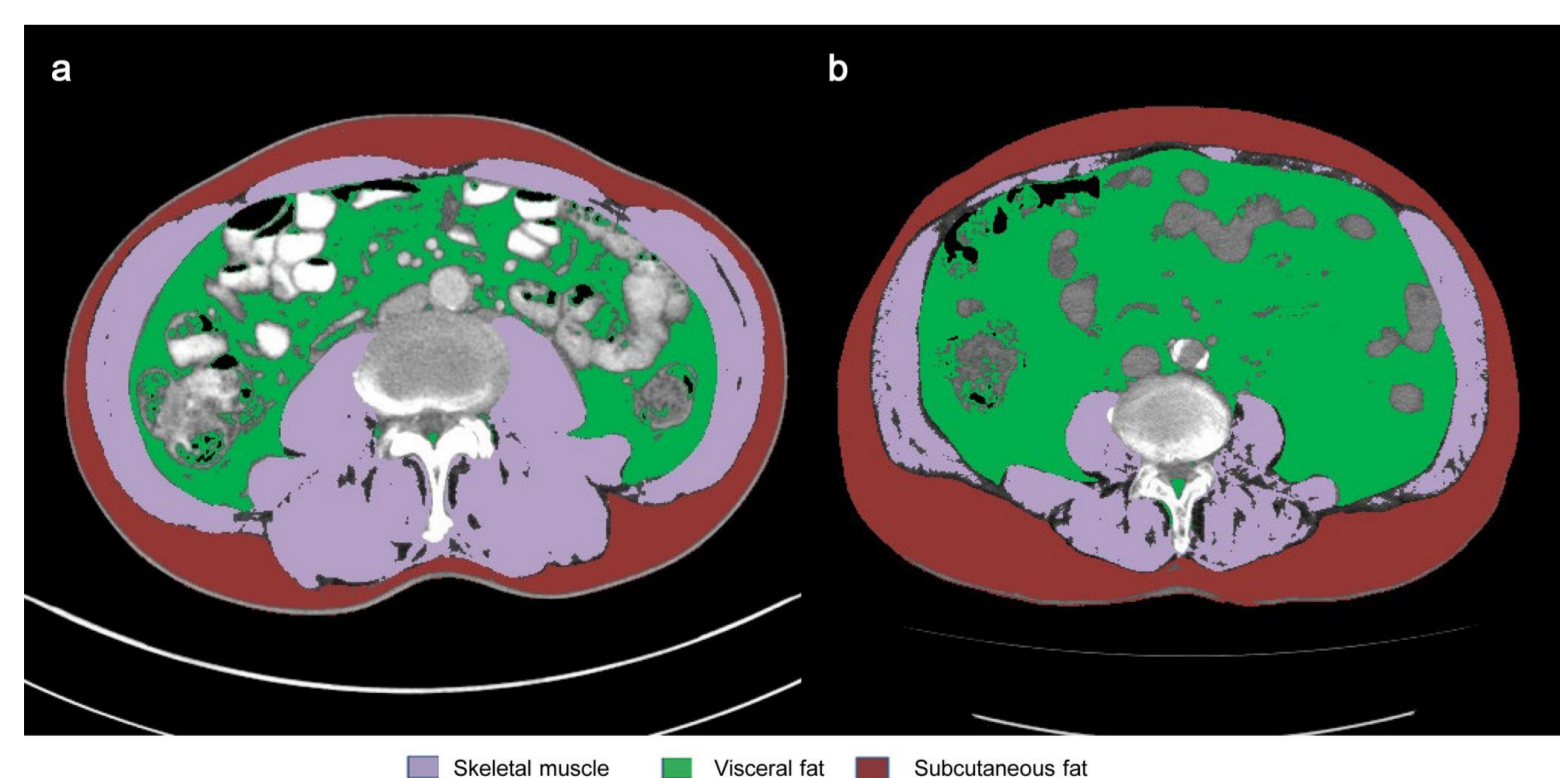
AIM

We investigated the factors, particularly body composition, potentially associated with overall survival among older HCC patients treated with TACE.

METHOD

We included 266 HCC patients ≥65 years old who received TACE as initial treatment.

We analyzed skeletal muscle index (SMI) and visceral-to-subcutaneous fat ratio (VSR) around the third lumbar vertebra using computed tomography scans from the first HCC diagnoses (5).



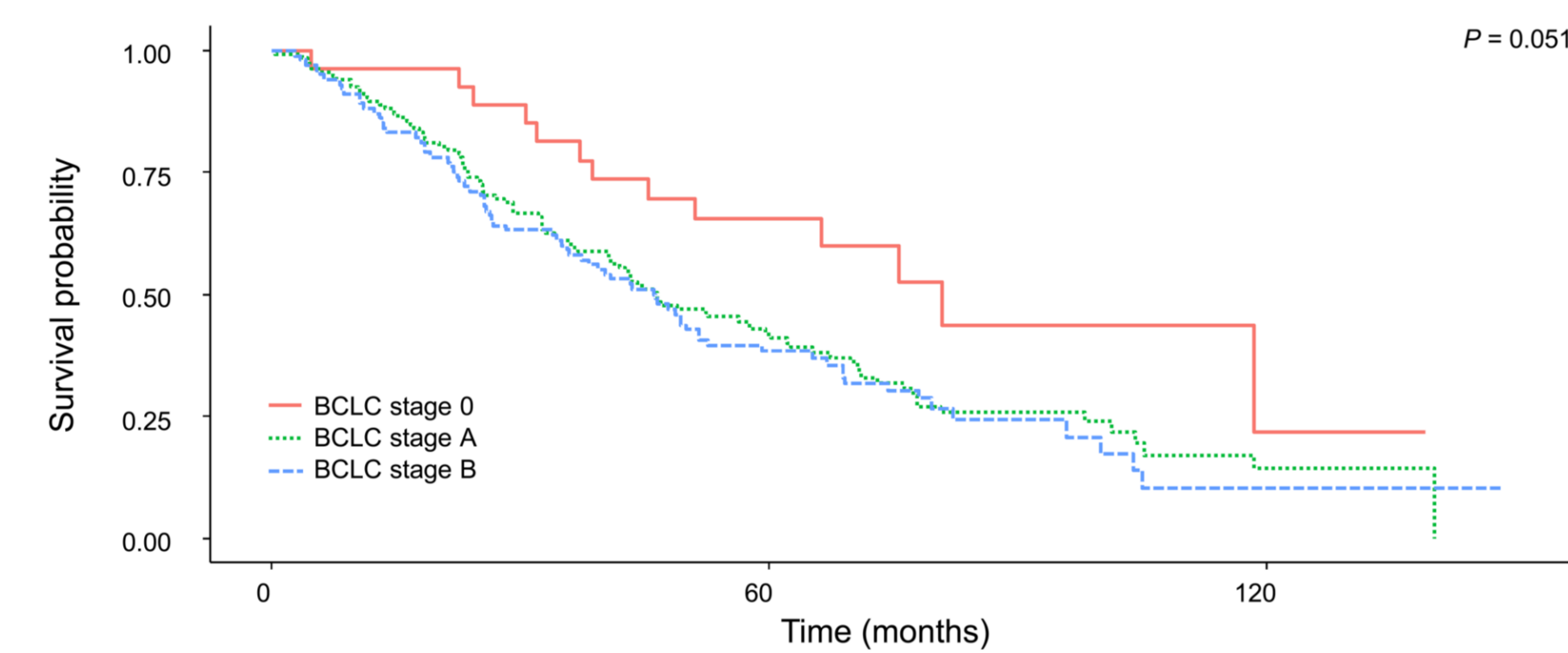
Muscle depletion with visceral adiposity (MDVA) was defined by falling below the median SMI value and above the median VSR sex-specifically.

We evaluated overall survival in association with MDVA and other clinical factors.

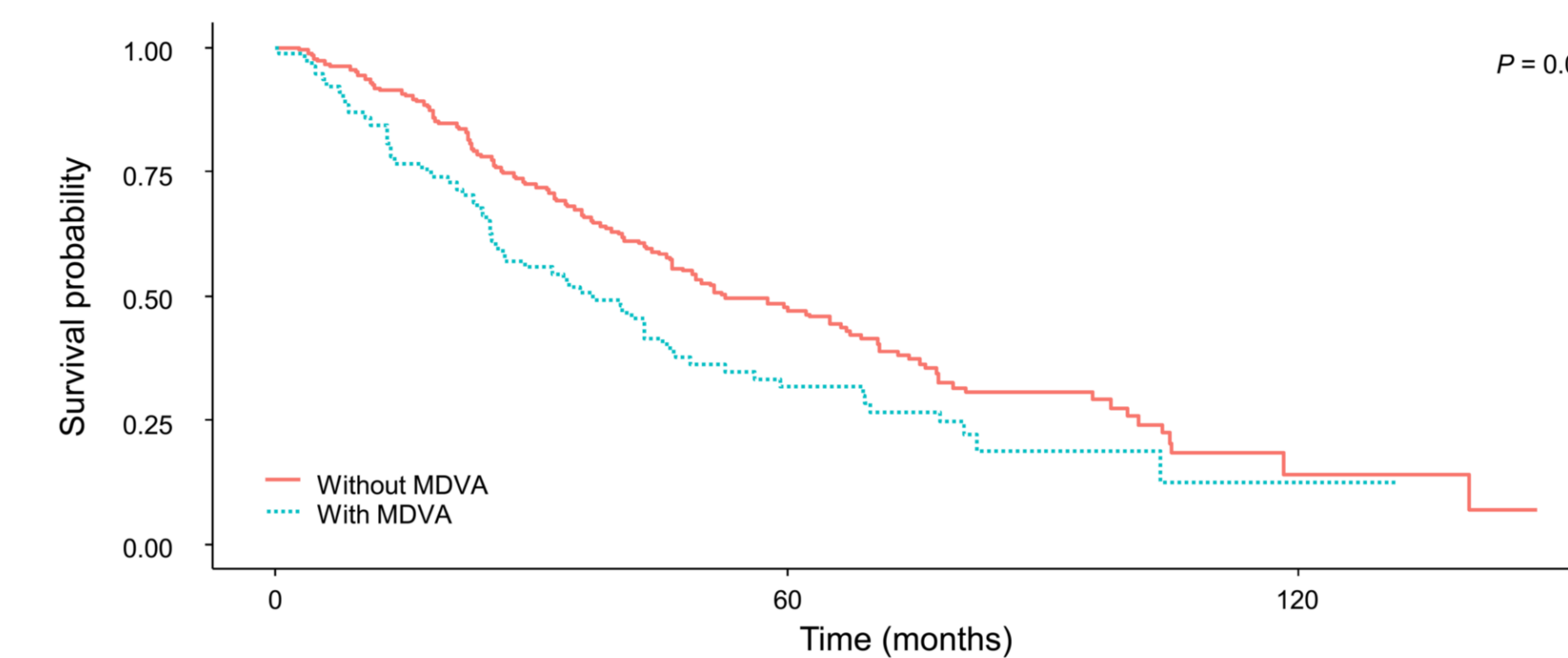
RESULTS

The mean age was 69.9±4.5 years, and 70.3% were men. Most patients were classified as Barcelona Clinic Liver Cancer (BCLC) stage A (51.1%) or B (38.0%), and 79 had MDVA.

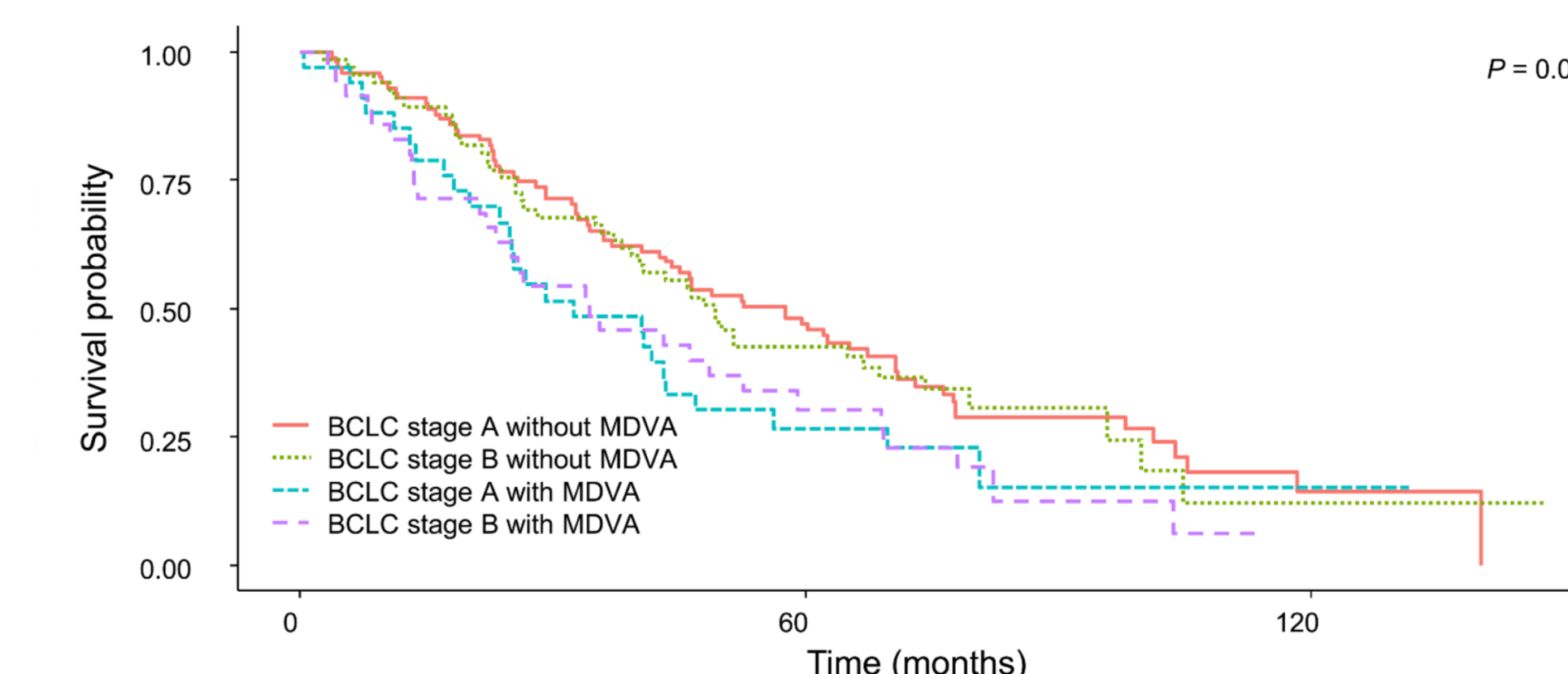
During the median follow-up of 46.0 months, 183 patients died. BCLC 0 patients had better survival outcomes, but survival among BCLC A vs. B patients did not significantly differ ($P=0.051$). MDVA patients had significantly poorer survival than non-MDVA patients ($P=0.018$).



MDVA patients had significantly poorer survival than non-MDVA patients ($P=0.018$).



When considering both BCLC stage and presence of MDVA, patients with BCLC stage A HCC with MDVA tended to have shorter life spans than those with BCLC stage B HCC without MDVA ($P = 0.083$).



Multivariate analysis revealed age, ascites, high Model for End-Stage Liver Disease score, lower serum, and MDVA as associated with poor overall survival.

	Univariate analysis		Multivariate analysis	
	HR (95% CI for HR)	P value	HR (95% CI for HR)	P value
Age (year)	1.071 (1.038-1.106)	<0.001	1.070 (1.036-1.105)	<0.001
Sex	1.069 (0.778-1.469)	0.682		
BMI (kg/m ²)	0.986 (0.943-1.030)	0.518		
Diabetes	1.139 (0.830-1.562)	0.421		
Hypertension	0.699 (0.518-0.944)	0.019	0.736 (0.531-1.020)	0.066
Cardiovascular attack	1.232 (0.645-2.353)	0.527		
Other malignancy	1.413 (0.818-2.440)	0.215		
Renal failure on dialysis	1.644 (0.808-3.346)	0.17		
Alcohol	0.828 (0.619-1.107)	0.202		
Smoking	0.826 (0.616-1.106)	0.2		
Etiology		<0.001		
Hepatitis B	-	1		
Hepatitis C	1.997 (1.412-2.827)	<0.001		
Others	1.312 (0.897-1.921)	0.162		
Variceal bleeding	1.792 (0.444-7.236)	0.413		
Ascites	2.887 (1.599-5.215)	<0.001	2.413 (1.244-4.681)	0.009
MELD score	1.117 (1.062-1.174)	<0.001	1.067 (1.001-1.137)	0.046
Number of tumors	1.211 (0.903-1.624)	0.202		
Size of tumor (>3.0 cm)	1.310 (0.979-1.754)	0.069		
Albumin (g/dL)		<0.001		0.002
>3.5	-	1	-	1
2.5-3.5	1.760 (1.289-2.403)	<0.001	1.460 (1.048-2.033)	0.025
<2.5	4.402 (2.655-7.297)	<0.001	2.882 (1.628-5.102)	<0.001
Platelet (<10×10 ⁹ /uL)	1.797 (1.341-2.410)	<0.001	1.364 (0.979-1.900)	0.066
BCLC		0.038		
stage 0	-	1		
stage A	1.899 (1.064-3.392)	0.03		
stage B	2.054 (1.138-3.706)	0.017		
Infiltrative type of HCC	1.867 (0.4612-7.559)	0.382		
Serum AFP (ng/mL)	1 (1-1)	0.33		
MDVA	1.452 (1.063-1.982)	0.019	1.472 (1.069-2.026)	0.018

CONCLUSIONS

Body composition, particularly in terms of MDVA status, can be a critical factor for maximizing benefits and avoiding adverse outcomes when selecting appropriate candidates for TACE among older HCC patients.

REFERENCES

- (1) Kim BH, Park JW. Epidemiology of liver cancer in South Korea. *Clin Mol Hepatol* 2018;24:1-9.
- (2) Smith BD, Smith GL, Hurria A, et al. Future of cancer incidence in the United States: burdens upon an aging, changing nation. *J Clin Oncol* 2009;27:2758-65.
- (3) Decoster L, Van Puyvelde K, Mohile S, et al. Screening tools for multidimensional health problems warranting a geriatric assessment in older cancer patients: an update on SIOG recommendations. *Ann Oncol* 2015;26:288-300.
- (4) VanderWalde N, Jagsi R, Dotan E, et al. NCCN guidelines insights: Older adult oncology, version 2.2016. *J Natl Compr Canc Netw* 2016;14:1357-70.
- (5) Lee K, Shin Y, Huh J, et al. Recent issues on body composition imaging for sarcopenia evaluation. *Korean J Radiol* 2019;20:205-17.

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