

Sarcopenia Predicts Outcomes in Patients with Hepatocellular Carcinoma Treated with Atezolizumab and Bevacizumab: A Multicenter Cohort Study

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Aims of study

- Atezolizumab and bevacizumab (A+B)
 - 1st-line systemic treatment of unresectable HCC
- Sarcopenia associated with unfavorable outcomes
 - negatively impact liver function
 - increase inflammation
 - decrease tolerance to treatments
 - lower the quality of life
- In this study, we retrospectively investigate the impact of sarcopenia on survival outcomes in patients with HCC who received A+B therapy.

Materials and Methods

- Retrospective multi-center study
- Consecutive HCC patients received A+B
- At six centers affiliated with the Catholic University of Korea, from September 2020 to December 2022
- Overall survival (OS), progression free survival (PFS)
- Total (n=150)

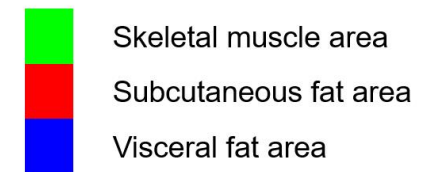
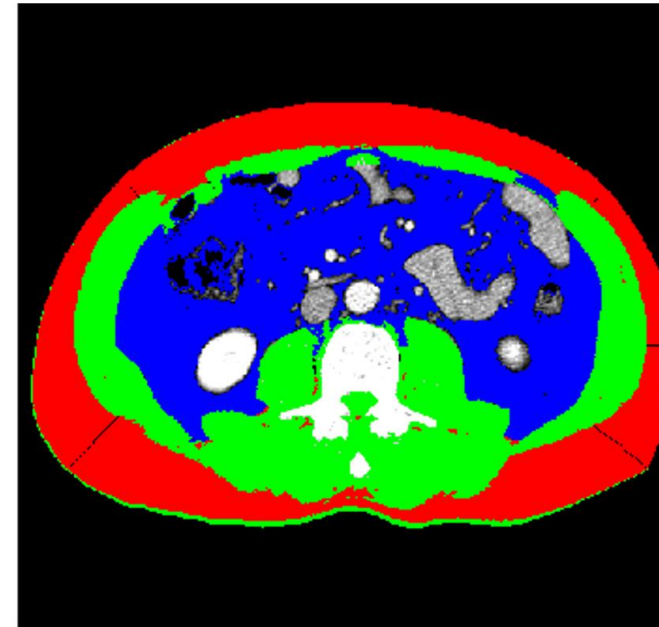
Results

- Median OS
13.6 months (95% CI; 8.0 – 20.6)
- Median PFS
5.7 months (95% CI; 4.0 – 12.5)

Factor	Total (n=150)
Age, mean (SD)	63.3 (11.3)
Male sex	128 (85.3%)
Etiology	
viral	104 (69.3%)
non-viral	46 (30.7%)
BMI, mean (SD)	23.2 (3.5)
Child-Pugh class (A)	134 (89.3%)
ALBI grade	
1	61 (40.7%)
2	89 (59.3%)
Tumor size (largest)	6.8 (2.7–11.0)
Tumor number (multiple)	109 (72.7%)
PVTT (yes)	78 (52.0%)
Extrahepatic spread (yes)	91 (60.7%)
mUICC stage	
3	16 (10.7%)
4	43 (28.7%)
5	91 (60.7%)
AFP, median (IQR)	184.0 (8.5–4587.6)
PIVKA, median (IQR)	1255.0 (158.7–16418.0)

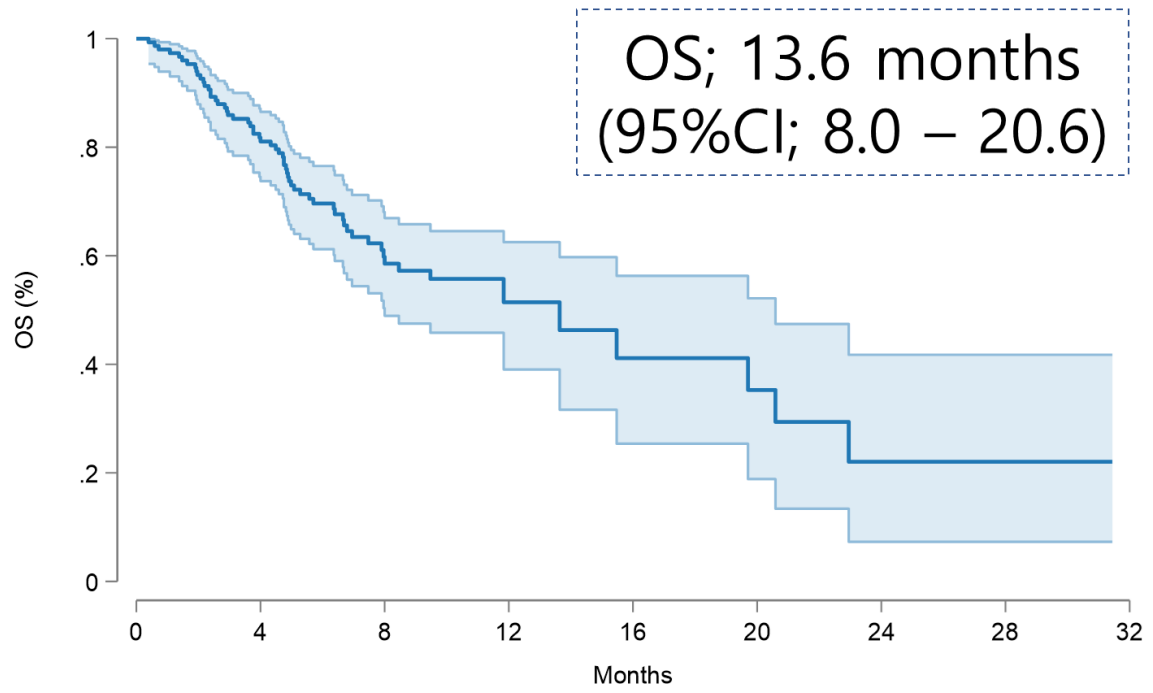
Sarcopenia definition

- Semi-automated open-source software
- CT scan image L3 vertebra within 1 month of treatment
- Skeletal muscle index (SMI) (cm^2/m^2)



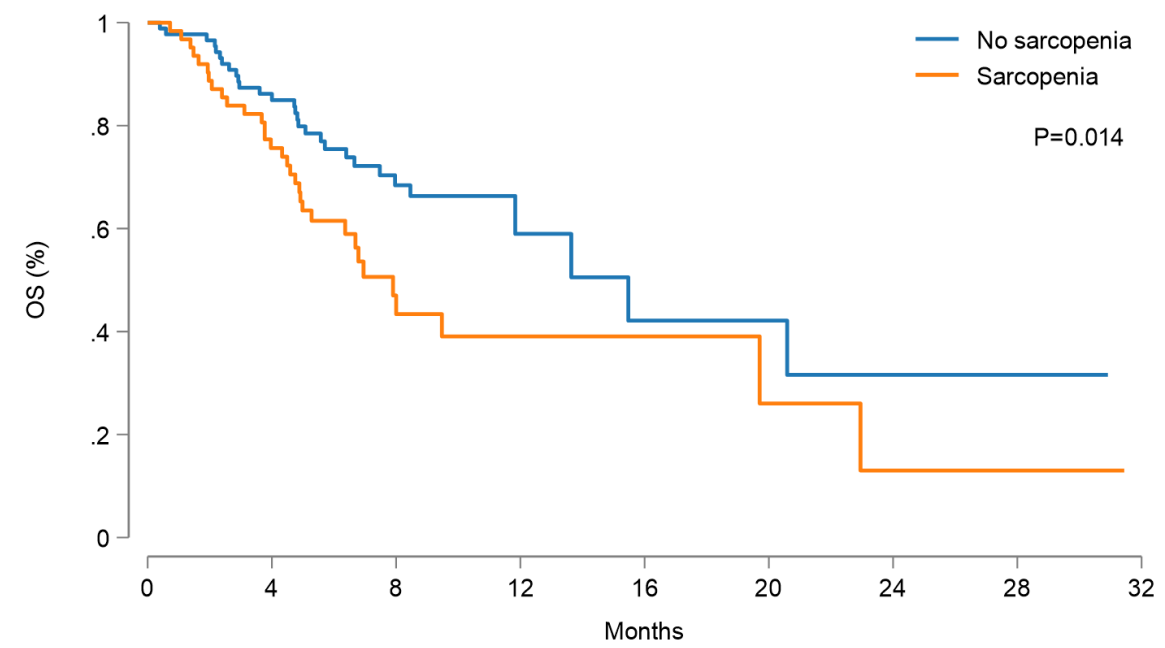
	BMI (kg/m^2)	SMI (cm^2/m^2)		SMI (cm^2/m^2)
Male	≥ 25	≤ 53	Female	≤ 41
	< 25	≤ 43		

Overall survival



Number at risk

	0	4	8	12	16	20	24	28	32
No sarcopenia	88	71	34	7	5	4	2	1	0
Sarcopenia	62	45	13	4	3	2	1	1	0



Number at risk

	0	4	8	12	16	20	24	28	32
No sarcopenia	88	71	34	7	5	4	2	1	0
Sarcopenia	62	45	13	4	3	2	1	1	0

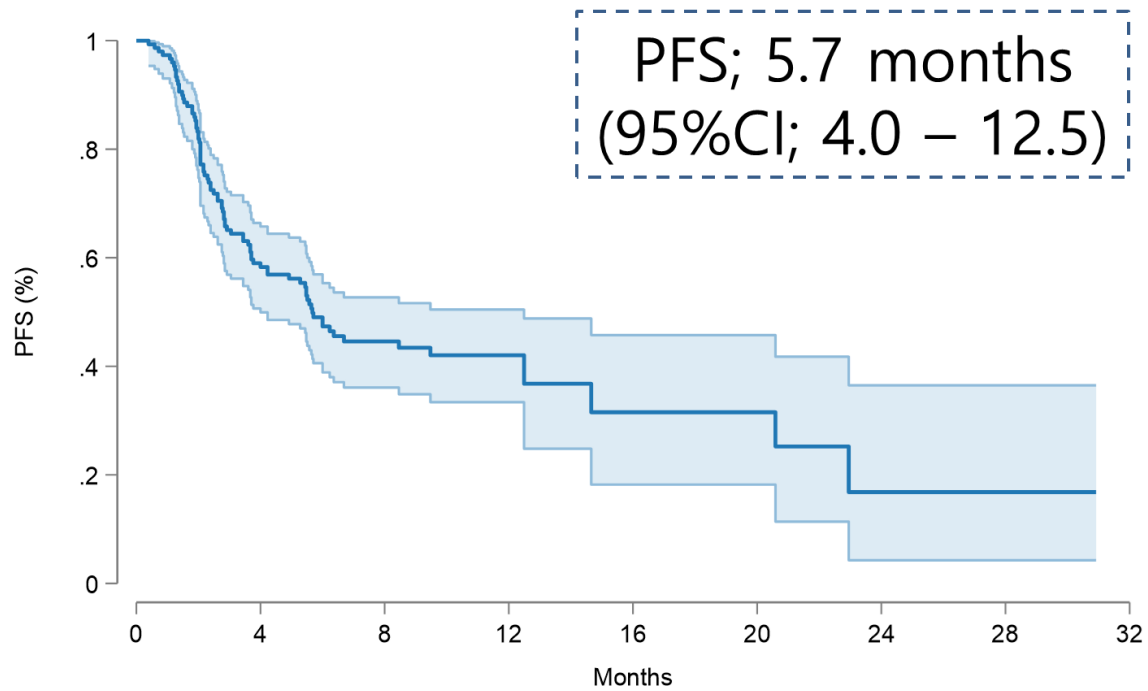
OS

	P-value
Age (>65)	0.278
Sex (male)	0.426
Etiology (viral)	0.545
Sarcopenia (yes)	0.014
NLR (>3)	0.089
Child-Pugh class (B)	<0.001

	P-value
ALBI grade (≥ 2)	<0.001
Tumor size (≥ 7cm)	0.006
AFP (≥ 400)	0.077
PVTT (yes)	0.027
EHS (yes)	0.107

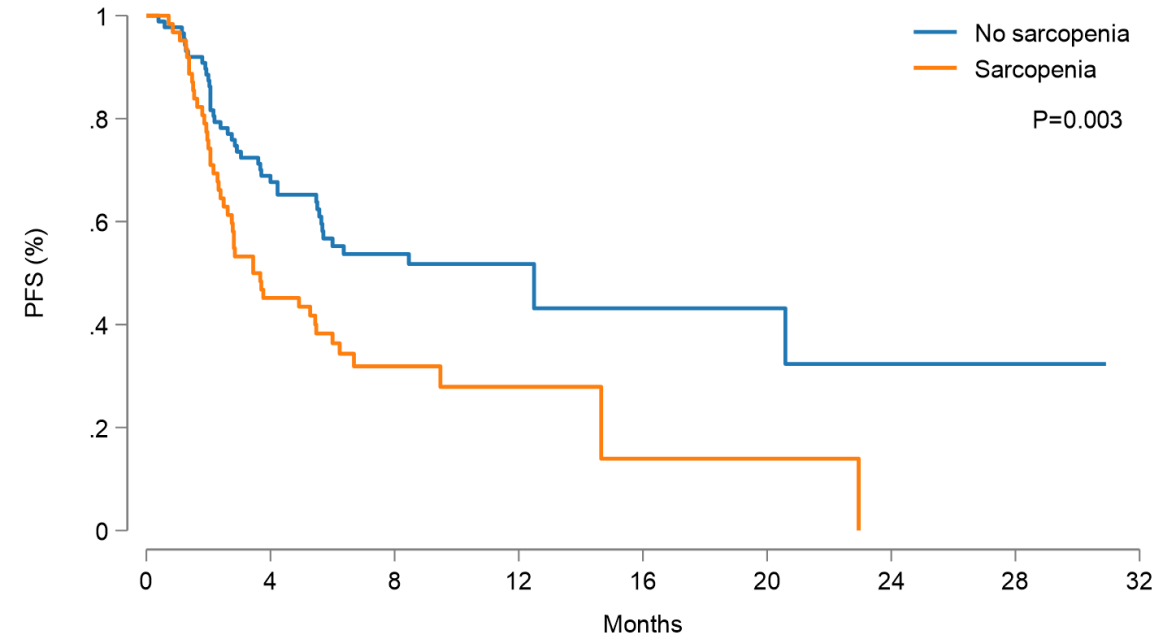
	HR	Std. err.	P-value	95% CI
Sarcopenia (yes)	1.674	0.440	0.050	1.001 - 2.803
Child-Pugh class (B)	2.645	0.911	0.005	1.347 - 5.196
ALBI grade (≥ 2)	2.599	0.870	0.004	1.349 - 5.009
PVTT (yes)	1.785	0.496	0.037	1.035 - 3.078
Tumor size (≥ 7 cm)	1.518	0.414	0.127	0.889 - 2.592

Progression free survival



Number at risk

	0	4	8	12	16	20	24	28	32
150	85	39	8	6	5	2	1	0	



Number at risk

	0	4	8	12	16	20	24	28	32
No sarcopenia	88	57	29	6	5	4	2	1	0
Sarcopenia	62	28	10	2	1	1	0	0	0

PFS

	P-value
Age (>65)	0.970
Sex (male)	0.257
Etiology (viral)	0.466
Sarcopenia (yes)	0.003
NLR (>3)	0.001
Child-Pugh class (B)	0.004

	P-value
ALBI grade (≥ 2)	0.005
Tumor size (≥ 7cm)	0.037
AFP (≥ 400)	0.008
PVTT (yes)	0.534
EHS (yes)	0.075

	HR	Std. err.	P-value	95% CI
Sarcopenia (yes)	1.683	0.379	0.021	1.082 - 2.618
NLR (>3)	1.585	0.365	0.046	1.009 - 2.490
Child-Pugh class (B)	1.694	0.550	0.105	0.896 - 3.203
ALBI grade (≥ 2)	1.443	0.369	0.152	0.874 - 2.384
Tumor size (≥ 7 cm)	1.056	0.255	0.823	0.657 - 1.696
AFP (≥ 400)	1.498	0.355	0.088	0.941 - 2.384

Conclusions

- A+B demonstrated considerable efficacy
 - mOS 13.6 mo (8.0–20.6), mPFS 5.7 mo (4.0–12.5)
- **Pre-treatment sarcopenia**
 - independent risk factor of outcomes (OS and PFS)
- To optimize survival outcomes, further studies are warranted to refine patient selection and personalize treatment strategies.