patients and 1 in 14.3%. Nonviral etiology was reported in 69.4% of patients. HCC was associated with hepatitis B virus in 8.2% of patients and hepatitis C virus in 14.3% of patients. Previous therapies included resection (22%) and radiotherapy (2%). The patients had a median of 3 tumors (range, 1-12), and the median tumor size was 3 cm (range, 0.6-14.7). The BCLC stage was A in 18.4%, B in 59.2%, and C in 2.0%.

The ORR was 71.4% (95% CI, 56.8%-83.4%), which consisted of complete responses (CRs) in 16.3% and partial responses (PRs) in 55.1% (Figure 3). A subgroup analysis did not identify any differences in treatment response, although the number of patients in each group was small.

Treatment was generally well tolerated.[2] The most common AEs of any grade were fatigue (30.6%), increase in aspartate aminotransferase (24.5%), and increase in alanine aminotransferase (22.4%). The most common AEs of grade 3 or higher were increases in aspartate aminotransferase (14.3%), gamma-glutamyl transferase (10.2%), and alanine aminotransferase (8.2%). An ongoing correlative analysis is evaluating whether treatment efficacy corresponds with genetic alterations, gene expression patterns, and/or changes in immune cell populations.

## References

1. Prince D, Liu K, Xu W, et al. Management of patients with intermediate stage hepatocellular carcinoma. *Ther Adv Med Oncol*. 2020;12:1758835920970840.
2. Vogel A, Saborowski A, Hinrichs J, et al. IMMUTACE: a phase II single-arm, open-label study of transarterial chemoembolization in combination with nivolumab performed for intermediate stage hepatocellular carcinoma [ESMO abstract LBA37]. *Ann Oncol*. 2021;32(suppl 5).

# Prognostic Factor Analysis of Atezolizumab-Bevacizumab in Unresectable Hepatocellular Carcinoma: Korean Cancer Study Group Study

In the phase 3 IMbrave150 trial, atezolizumab plus bevacizumab improved PFS and OS in patients with previously untreated, unresectable HCC.[1] A retrospective, multicenter analysis by the Korean Cancer Study Group evaluated real-world data to identify prognostic factors among patients with advanced HCC treated with first-line atezolizumab plus bevacizumab.[2]

The trial enrolled 121 patients with a Child-Pugh score of A5 (74.4%) or A6 (25.6%) and BCLC stage B (20.7%) or C (79.3%) disease.[2] Their median age was 61 years, and most patients (84%) were male. Macrovascular invasion was reported in 37.2% of patients, and 70.2% of patients had extrahepatic spread. The cause of HCC was hepatitis B in 76.9% and hepatitis C in 5%. Prior treatment included TACE in 57.9% of patients, radiotherapy in 37.2%, surgery in 31.4%, and radiofrequency ablation in 14.9%.

The ORR was 24.0%, with a CR rate of 1.7%.[2] The median OS was not reached (95% CI, not evaluable; Figure 4), and the median PFS was 6.5 months (95% CI, 4.1-9.0). Based on multivariate analysis, the PFS and OS were significantly better in patients with a neutrophil-to-lymphocyte ratio of less than 5 (Figure 5). The hazard ratio for the neutrophil-to-lymphocyte ratio (≥5 vs <5) was 2.23 (95% CI, 1.12-4.45; *P*=.023) for PFS and 4.68 (95% CI, 1.87-11.73; *P*<.001) for OS. The median PFS was superior in patients who achieved a CR or PR vs those with stable or progressive disease (*P*<.001), as well as in those with an increase in alpha-fetoprotein vs those with a decrease (*P*=.002).

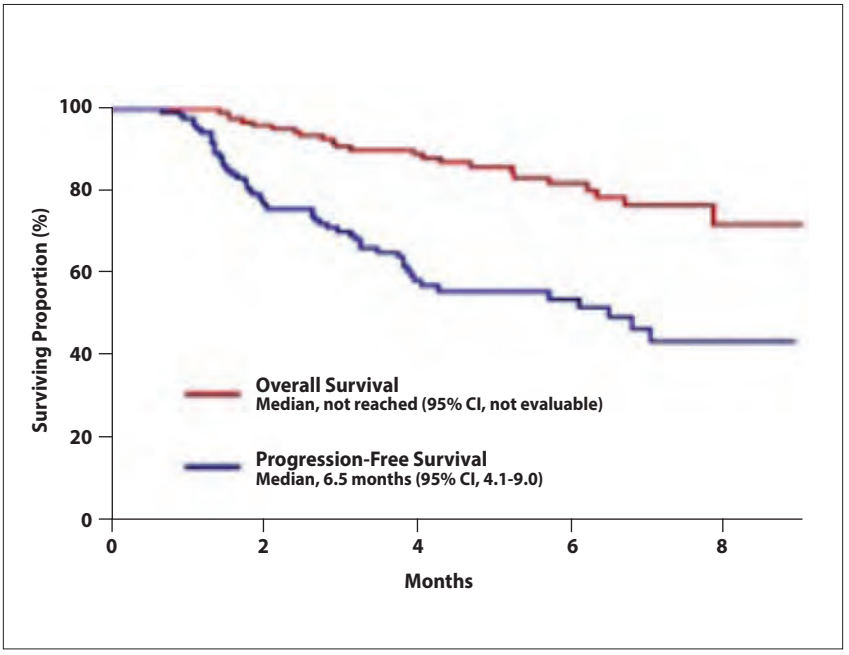


**Figure 4.** Overall and progression-free survival in a retrospective, multicenter analysis of patients with advanced hepatocellular carcinoma treated with first-line atezolizumab plus bevacizumab. Adapted from Cheon J et al. ESMO abstract 955P. *Ann Oncol*. 2021;32(suppl 5).[2]

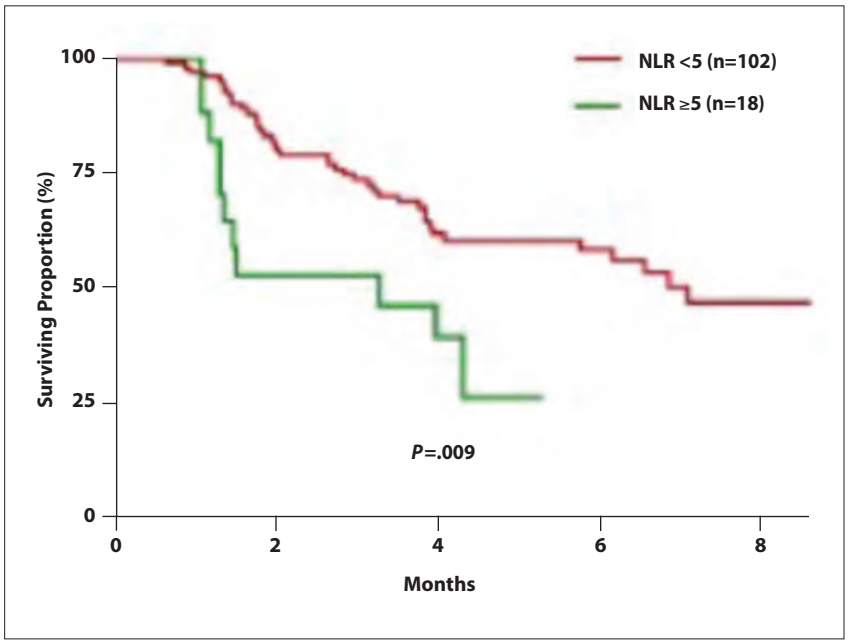


**Figure 5.** Median progression-free survival according to the NLR in a retrospective, multicenter analysis of patients with advanced hepatocellular carcinoma treated with first-line atezolizumab plus bevacizumab. NLR, neutrophil-to-lymphocyte ratio. Adapted from Cheon J et al. ESMO abstract 955P. *Ann Oncol.* 2021;32(suppl 5).[2]

A grade 3/4 AE was reported in 28.9%. The most common grade 3/4 AEs were elevated aspartate aminotransferase in 10.7%, hypertension in 6.6%, and thrombocytopenia in 4.9%.

The study investigators concluded that the results of their real-world analysis were similar to those reported in the IMbrave150 trial.[1,2] They noted that careful assessment of treatment response is needed in patients with an elevated neutrophil-to-lymphocyte ratio, who had lower survival outcomes in this analysis.

## References

1. Finn RS, Qin S, Ikeda M, et al; IMbrave150 Investigators. Atezolizumab plus bevacizumab in unresectable hepatocellular carcinoma. *N Engl J Med.* 2020;382(20):1894-1905.
2. Cheon J, Yoo C, Hong JY, et al. Prognostic factor analysis of atezolizumab-bevacizumab in unresectable hepatocellular carcinoma: Korean Cancer Study Group (KCSG) study [ESMO abstract 955P]. *Ann Oncol.* 2021;32(suppl 5).

# Updated Survival and Secondary Safety and Efficacy Analyses From CA 209-678: A Phase 2, Open-Label, Single-Center Study of Y90-Radioembolization in Combination With Nivolumab in Asian Patients With Advanced Hepatocellular Carcinoma

As separate therapies, nivolumab and Yttrium-90 (Y90) are effective in patients with advanced HCC.[1,2] Previous data have suggested that there may be synergy between these 2 treatments.[3] The open-label, single-center phase 2 CA 209-678 trial investigated Y90 embolization combined with nivolumab in patients with advanced HCC.[4]

The trial enrolled 40 patients, of whom 36 were evaluable.[4] All patients had a Child-Pugh score of A and were not candidates for curative surgery. The patients' median age was 64 years (range, 23-79 years), 78% were male, and 69% were of Chinese ethnicity.

The patients received a median of 7 cycles (range, 1-66+) of nivolumab. After a median follow-up of 24.8

**Table.** Responses in CA 209-678, a Phase 2 Study of Y90 Embolization Combined With Nivolumab in Patients With Advanced Hepatocellular Carcinoma

| | Response Rate (95% CI) | Disease Control Rate (95% CI) |
|---|---|---|
| Overall population | 30.6% (16.4%-48.1%) | 61.1% (43.5%-76.9%) |
| Hepatitis B+ (n=22) | 27.3% (10.7%-50.2%) | 50.0% (28.2%-71.8%) |
| Hepatitis B– (n=14) | 35.7% (12.8%-64.9%) | 78.6% (49.2%-95.3%) |
| AFP ≤400 ng/mL (n=18) | 27.8% (9.7%-53.5%) | 66.7% (41.0%-96.7%) |
| AFP >400 ng/mL (n=18) | 33.3% (13.3%-59.0%) | 55.6% (30.8%-78.5%) |

AFP, alpha-fetoprotein; Y90, Yttrium-90.
Adapted from Lee J et al. ESMO abstract 947P. *Ann Oncol.* 2021;32(suppl 5).[4]