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Efficacy and Tolerability of Carfilzomib in Relapsed/Refractory Multiple Myeloma — Single-Center Experience (n=128)

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BACKGROUND

Multiple myeloma (MM) remains an incurable hematologic malignancy requiring successive lines of therapy.

Despite advances with novel agents, most patients will eventually relapse or become refractory, necessitating further treatment strategies.

Carfilzomib (Cfz) is a second-generation, irreversible proteasome inhibitor demonstrating superior efficacy over bortezomib with a more favorable tolerability profile, particularly regarding peripheral neuropathy, a major dose-limiting toxicity of bortezomib-based regimens.

Real-world data on carfilzomib-based combinations in heavily pre-treated, bortezomib-refractory populations remain limited.

This single-center study aims to contribute to the growing evidence base in this setting.

PATIENTS AND METHODS

Study Design Retrospective, single-center observational study

Population: 128 patients with RRMM

Period: 2023–2025

Median age: 60.5 years

PS ≥ 2 : 53.9%.

Bortezomib-refractory: 80.5%

Treatment Regimens (Cfz at 56 or 70 mg/m²)

KRd (+ lenalidomide) 58.6%

KCd (+ cyclophosphamide) 21.1%

Kd (carfilzomib alone) 20.3%

RESULTS 1

Response rate

ORR

50%

CR

20.3%

VGPR

23.4%

\geq VGPR

43.8%

RESULTS 3

Tolerability Profile

Toxicity	% patients
Thrombocytopenia	46.9%
Anemia	38.3%
Neutropenia	27.3%
Infectious complications	13.3%
Peripheral neuropathy	0%
Dyspnea	0%
Infusion-related reactions	0%

! Treatment-related mortality: 10.2% (predominantly infectious complications)

RESULTS 2

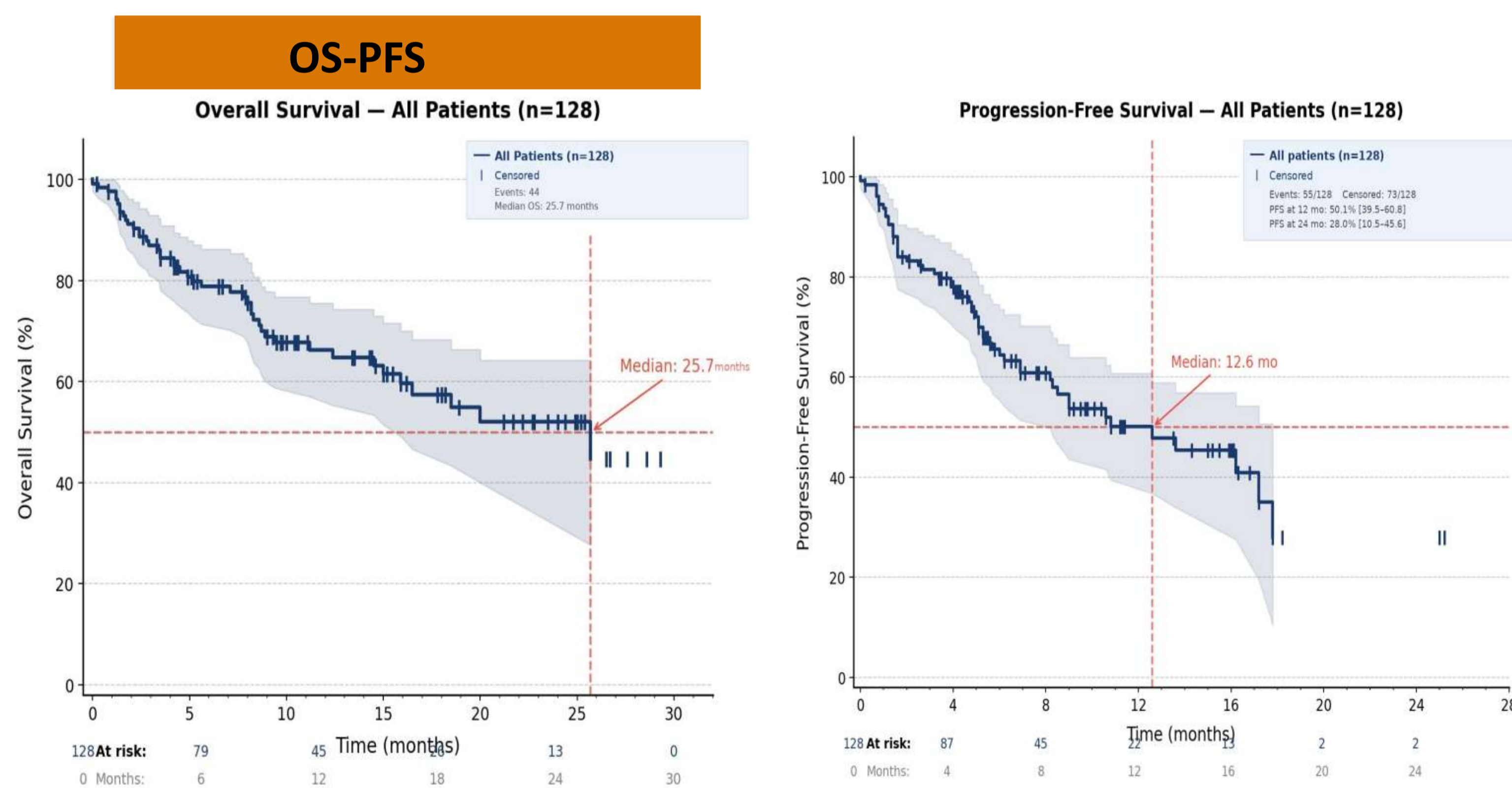


Figure 1. Overall Survival — All Patients (n=128)

Figure 2. Progression-Free Survival — All Patients (n=128)

CONCLUSION

This real-world study confirms the efficacy and favorable tolerability of carfilzomib-based regimens in a high-risk, largely bortezomib-refractory RRMM population:

- ORR of 50% with a high-quality response rate of 43.8% demonstrates clinically meaningful activity
- Median PFS of 12.6 months and OS of 25.7 months are consistent with published data in comparable populations
- The complete absence of peripheral neuropathy represents a major therapeutic advantage supporting improved patient quality of life; caution is warranted given the retrospective nature of this data
- KRd was the most frequently used regimen (58.6%); formal sub-group comparisons are needed to confirm its superiority over other combinations

Carfilzomib-based therapy should be considered a standard option for RRMM patients progressing after bortezomib-based treatment, particularly when neuropathy prevention is a clinical priority.

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