Evaluating the Role of Thalidomide Maintenance in Multiple Myeloma

Key Takeaways

- A multicenter randomized design assigned 195 patients (<60 years) to upfront tandem ASCT or single ASCT with thalidomide 100 mg daily starting ~day 90 post-transplant for 6 months.
- Three-year overall survival favored maintenance after single ASCT (85% vs 65%; P=.04), suggesting delayed intensification can outperform routine tandem transplantation in this cohort.
- Progression-free survival at 3 years also improved with single ASCT plus maintenance (85% vs 57%; P=.02), supporting maintenance-driven consolidation over immediate second transplant.
- Toxicity tradeoffs remain central: thalidomide is limited by neuropathy, sedation, and thromboembolic risk, and contemporary practice often substitutes lenalidomide for tolerability and efficacy.
- Publication integrity is a critical consideration, as the referenced trial report was subsequently retracted, limiting confidence in the specific effect estimates and practice inferences.

In multiple myeloma (MM), single ASCT plus thalidomide maintenance improves survival.

Autologous stem-cell transplantation (ASCT) remains a cornerstone of therapy for eligible patients with newly diagnosed multiple myeloma (MM). Historically, tandem ASCT has been explored as a strategy to deepen response and prolong survival. However, findings from a multicenter randomized clinical trial published in Blood suggest that a single ASCT followed by thalidomide maintenance may offer superior outcomes compared with upfront tandem transplantation.[1]

Study Design and Patient Population

In this multicenter randomized study, investigators enrolled 195 patients younger than 60 years with newly diagnosed symptomatic MM. Patients were randomly assigned to receive either tandem ASCT upfront (arm A) or a single ASCT followed by maintenance thalidomide (ThalomidGrünenthal; arm B). In the single-transplant arm, patients were eligible to receive a second transplant at the time of disease progression, offering a delayed intensification approach.[1]

All patients underwent induction therapy with thalidomide and dexamethasone (Decadron) prior to stem-cell collection, followed by high-dose chemotherapy and ASCT. In the maintenance arm, thalidomide was initiated approximately 90 days post-transplant at a dose of 100 mg daily and continued for 6 months. Outcomes were assessed on an intent-to-treat basis, with a median follow-up of 33 months.[1]

Improved Survival Outcomes With Single ASCT Plus Maintenance

The results demonstrated a clear survival advantage for patients receiving a single ASCT followed by thalidomide maintenance. The 3-year overall survival rate was significantly higher in the maintenance arm compared with the tandem transplant arm (85% vs 65%; P = .04).1 Similarly, progression-free survival at 3 years favored the single ASCT plus maintenance strategy (85% vs 57%; P = .02).[1]

These findings suggest that consolidation with maintenance therapy may be more beneficial than intensification through a second immediate transplant. Importantly, the study design allowed for a second transplant at relapse in the single-ASCT arm, supporting a risk-adapted, sequential approach rather than upfront tandem therapy.[1]

Clinical Implications of Thalidomide Maintenance

Maintenance therapy has emerged as a critical component of myeloma management, aimed at prolonging remission and delaying disease progression. Thalidomide, an immunomodulatory agent, has demonstrated activity in improving event-free and overall survival following ASCT in multiple studies.2 Its mechanisms include antiangiogenic effects, modulation of the tumor microenvironment, and enhancement of immune-mediated cytotoxicity.

The results of this trial reinforce the importance of maintenance therapy as a strategy to sustain response after high-dose therapy. By contrast, tandem transplantation increases treatment-related burden without clearly improving long-term outcomes in this patient population. The ability to reserve a second transplant for relapse may also reduce unnecessary toxicity while preserving therapeutic options.[1]

Considerations for Clinical Practice

Although thalidomide maintenance was associated with improved survival in this study, its use must be balanced against known toxicities, including peripheral neuropathy, sedation, and thromboembolic risk. In modern practice, newer agents such as lenalidomide have largely supplanted thalidomide due to improved tolerability and efficacy profiles.[1]

These findings also highlight a broader shift in myeloma treatment paradigms—from maximizing upfront intensity to optimizing long-term disease control through maintenance and sequential therapy. For pharmacists, understanding the evolving role of maintenance strategies is essential for supporting adherence, managing adverse effects, and guiding patient education.[1]

Conclusion

The multicenter randomized trial demonstrates that single ASCT followed by thalidomide maintenance yields superior survival outcomes compared with tandem ASCT in patients with newly diagnosed MM.1 This approach underscores the value of maintenance therapy in prolonging remission and supports a more individualized, sequential treatment strategy. As therapeutic options continue to expand, integrating maintenance regimens remains central to improving long-term outcomes in this patient population.

REFERENCES

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