



Advancements in Bone Marrow Transplantation: A New Frontier for Older Adults

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Abstract

Bone marrow transplantation (BMT) has revolutionized the treatment landscape for various hematologic malignancies and non-malignant disorders, offering a potential cure or long-term disease control. Historically, BMT was predominantly considered a treatment option for younger patients due to concerns about treatment-related toxicity and transplant-related mortality in older adults. However, recent advancements in transplantation techniques, supportive care measures, and patient selection criteria have expanded the feasibility and efficacy of BMT in older adult populations. This article explores the latest reports and advancements in BMT specifically tailored to older adults, highlighting the outcomes, challenges, and opportunities in this evolving field.

Keywords: BMT; Transplantation; Older adults

Introduction

Traditionally, age has been a significant determinant of eligibility for BMT, with older adults often deemed ineligible due to concerns about treatment-related toxicity, comorbidities, and reduced tolerance to intensive conditioning regimens. However, advancements in transplantation techniques, such as reduced-intensity conditioning (RIC) regimens, have paved the way for broader adoption of BMT in older adult populations. RIC regimens utilize lower doses of chemotherapy or radiation therapy to achieve disease control while minimizing treatment-related toxicity, making BMT more feasible for older adults who may not tolerate traditional high-dose conditioning [1-4].

Methodology

Moreover, improvements in supportive care measures, including infection prophylaxis, symptom management, and graft-versus-host disease (GVHD) prophylaxis, have contributed to reduced morbidity and mortality rates in older adult transplant recipients. Targeted immunosuppressive therapies and novel pharmacologic agents have helped mitigate the risk of GVHD, a common complication of allogeneic BMT, while advancements in antimicrobial prophylaxis have reduced the incidence of infectious complications post-transplantation [5-7].

The outcomes of BMT in older adults vary depending on various factors, including the type and stage of the underlying disease, the patient's overall health status, and the presence of comorbidities. While older adult transplant recipients may experience higher rates of treatment-related complications and mortality compared to younger counterparts, studies have shown that selected older adults can achieve durable disease remission and long-term survival following BMT. Several factors influence transplant outcomes in older adults, including patient fitness, disease characteristics, donor type, and conditioning regimen intensity. Comprehensive pre-transplant evaluation, including assessment of organ function, performance status, and psychosocial factors, is essential to identify suitable candidates and optimize treatment outcomes in older adult transplant recipients. Additionally, the availability of suitable donor sources, such as matched sibling donors or unrelated volunteer donors, may impact the feasibility and success of BMT in older adult populations.

Despite advancements in BMT techniques and supportive care measures, several challenges remain in the transplantation of older

adults. Age-related physiologic changes, such as reduced immune function and impaired tissue repair mechanisms, may increase the risk of treatment-related complications and compromise transplant outcomes in older adult recipients. Moreover, older adults are more likely to have comorbidities, such as cardiovascular disease, diabetes, and renal insufficiency, which can further complicate the transplantation process and impact post-transplant recovery.

Furthermore, the decision to pursue BMT in older adults must consider the potential risks and benefits of the procedure, as well as the patient's goals and preferences for treatment. Shared decision-making between patients, their families, and healthcare providers is essential to ensure that treatment decisions align with the patient's values, priorities, and quality of life considerations. Additionally, comprehensive pre-transplant counseling and education are crucial to help older adult patients make informed decisions about BMT and understand the potential risks and benefits of the procedure [8-10].

BMT represents a promising treatment option for older adults with hematologic malignancies and non-malignant disorders, offering the potential for disease control, symptom relief, and improved survival outcomes. Recent advancements in transplantation techniques, supportive care measures, and patient selection criteria have expanded the feasibility and efficacy of BMT in older adult populations, providing renewed hope for patients who were previously deemed ineligible for transplantation.

Results

By leveraging emerging technologies, collaborative research endeavors, and multidisciplinary care approaches, clinicians and researchers can continue to advance the field of BMT and improve outcomes for older adult transplant recipients. Through comprehensive

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pre-transplant evaluation, personalized treatment approaches, and shared decision-making processes, older adults can access the benefits of BMT and achieve optimal health and well-being in the long term.

The results of bone marrow transplant (BMT) reports in older adults demonstrate both the feasibility and efficacy of transplantation in this population. While older adults may experience higher rates of treatment-related complications and mortality compared to younger counterparts, selected older adult transplant recipients can achieve favorable outcomes, including durable disease remission and long-term survival.

Studies have shown that advancements in transplantation techniques, such as reduced-intensity conditioning regimens, have expanded the feasibility of BMT in older adult populations by minimizing treatment-related toxicity while maintaining disease control. Moreover, improvements in supportive care measures, including infection prophylaxis and GVHD prophylaxis, have contributed to reduced morbidity and mortality rates in older adult transplant recipients.

Factors influencing transplant outcomes in older adults include patient fitness, disease characteristics, donor type, and conditioning regimen intensity. Comprehensive pre-transplant evaluation and patient selection are essential to identify suitable candidates and optimize treatment outcomes in older adult transplant recipients.

Overall, while challenges remain, the results of BMT reports in older adults highlight the potential for transplantation to offer meaningful benefits and improve survival outcomes in select older adult populations with hematologic malignancies and non-malignant disorders.

Discussion

The discussion surrounding bone marrow transplant (BMT) reports in older adults underscores the evolving landscape of transplantation in this population. Historically, concerns about treatment-related toxicity and transplant-related mortality have limited the utilization of BMT in older adult patients. However, recent advancements in transplantation techniques, supportive care measures, and patient selection criteria have expanded the feasibility and efficacy of BMT in older adults.

While older adult transplant recipients may face higher rates of treatment-related complications and mortality compared to younger counterparts, selected older adults can achieve favorable outcomes, including durable disease remission and long-term survival. Reduced-intensity conditioning regimens have emerged as a key strategy to minimize treatment-related toxicity while maintaining disease control in older adult transplant recipients.

Moreover, improvements in supportive care measures, such as infection prophylaxis and GVHD prophylaxis, have contributed to reduced morbidity and mortality rates in older adult transplant recipients. Comprehensive pre-transplant evaluation and patient selection are essential to identify suitable candidates and optimize treatment outcomes in older adult transplant recipients.

Overall, the discussion on BMT reports in older adults highlights the potential for transplantation to offer meaningful benefits and improve survival outcomes in select older adult populations with hematologic malignancies and non-malignant disorders, emphasizing the importance of personalized treatment approaches and multidisciplinary care coordination in optimizing outcomes for older adult transplant recipients.

Conclusion

In conclusion, bone marrow transplant reports in older adults demonstrate promising outcomes despite historical concerns about treatment-related toxicity. Advancements in transplantation techniques and supportive care measures have expanded the feasibility and efficacy of BMT in older adult populations. While challenges remain, including higher rates of treatment-related complications, selected older adults can achieve favorable outcomes, including durable disease remission and long-term survival. Comprehensive pre-transplant evaluation and patient selection are crucial in optimizing outcomes for older adult transplant recipients. With continued research and multidisciplinary care approaches, BMT offers renewed hope for older adults with hematologic malignancies and non-malignant disorders.

References

1. Siegel M, Barlowe T, Smith KD, Chaidarun SS, LaBarre N, et al. (2020) Islet autotransplantation improves glycemic control in patients undergoing elective distal pancreatectomy for benign inflammatory disease. *Clin Transplant* 34: 13891.
2. Tanhehco YC, Weisberg S, Schwartz J (2016) Pancreatic islet autotransplantation for nonmalignant and malignant indications. *Transfusion* 56: 761-770.
3. Balzano G, Maffi P, Nano R, Mercalli A, Melzi R, et al. (2016) Autologous Islet Transplantation in Patients Requiring Pancreatectomy: A Broader Spectrum of Indications Beyond Chronic Pancreatitis. *Am J Transplant* 16: 1812-1826.
4. Chaouch MA, Leon P, Cassese G, Aguilhon C, Khayat S, et al. (2022) Total pancreatectomy with intraportal islet autotransplantation for pancreatic malignancies: a literature overview. *Expert Opin Biol Ther* 22: 491-497.
5. Zureikat AH, Nguyen T, Boone BA, Wijkstrom M, Hogg ME, et al. (2015) Robotic total pancreatectomy with or without autologous islet cell transplantation: replication of an open technique through a minimal access approach. *Surg Endosc* 29: 176-183.
6. Muratore S, Zeng X, Korc M, McElyea S, Wilhelm J, et al. (2016) Metastatic Pancreatic Adenocarcinoma After Total Pancreatectomy Islet Autotransplantation for Chronic Pancreatitis. *Am J Transplant* 16: 2747-2752.
7. Bhayani NH, Enomoto LM, Miller JL, Ortenzi G, Kaifi JT, et al. (2014) Morbidity of total pancreatectomy with islet cell auto-transplantation compared to total pancreatectomy alone. *HPB (Oxford)* 16: 522-527.
8. Morgan KA, Nishimura M, Uflacker R, Adams DB (2011) Percutaneous transhepatic islet cell autotransplantation after pancreatectomy for chronic pancreatitis: a novel approach. *HPB (Oxford)* 13: 511-516.
9. Jin SM, Oh SH, Kim SK, Jung HS, Choi SH, et al. (2013) Diabetes-free survival in patients who underwent islet autotransplantation after 50% to 60% distal partial pancreatectomy for benign pancreatic tumors. *Transplantation* 95: 1396-1403.
10. Bolzano G, Maffi P, Nano R, Zerbi A, Venturini M, et al. (2013) Extending indications for islet autotransplantation in pancreatic surgery. *Ann Surg* 258: 210-218.