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**Recent Increase in Multiple Myeloma Survival Attributed to Novel Therapies**  
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Multiple myeloma is one of the most common and devastating bone marrow cancers in the U.S., but survival rates have risen dramatically over the past decade. Recent analyses suggest that this trend may be attributed to new types of drugs and aggressive therapeutic interventions such as stem cell transplantation, according to the results of two studies prepublished online in *Blood*.

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Multiple myeloma (MM) is a neoplasm of plasma cells, a type of cell that resides in the bone marrow and produces antibody proteins. Survival rates for MM have traditionally been grim, with most patients dying within two to three years after diagnosis. However, within the last decade, a group of new therapies has been developed and approved for use in MM patients, including thalidomide (Thalomid®), lenalidomide (Revlimid®), and bortezomib (Velcade®).

Used alone or paired with traditional chemotherapy, these drugs have been shown to be highly effective in recently diagnosed and relapsed MM patients. Also, over the past decade high-dose chemotherapy and peripheral blood stem cell transplantation has been increasingly used for treatment of MM, especially in younger patients. Two recent studies analyzed outcomes in large populations of MM patients, comparing results with regard to diagnosis date, age, and gender.

### **Long-Term Survival of Younger Patients with Multiple Myeloma**

In one study, a research team from the German Cancer Research Center and Weill Cornell Medical Center in New York analyzed trends in five- and 10-year survival of MM patients in the U.S. to understand how new therapies and innovative approaches have translated into better survival for patients. In this large epidemiologic study, 26,523 patients diagnosed with MM in the U.S. were studied from the 1990-1992 to 2002-2004 SEER (Surveillance, Epidemiology, and End Results) database.

The analyses found a definitive overall increase in the survival of MM patients over the past decade. In particular, five-year survival increased from 28.8 to 34.7 percent, and 10-year survival increased from 11.1 to 17.4 percent. Importantly, survival increased most dramatically in the youngest age group -- more than half (56.7 percent) of patients younger than 50 survived at least five years, and more than 40 percent (41.3 percent) survived at least 10 years. In real years, the average relative survival increased from four years after diagnosis in 1990-1992 to almost seven years after diagnosis in 2002-2004.

Patients age 50-59 also fared well, with approximately half (48.2 percent) surviving at least five years, and nearly a third (28.6 percent) surviving at least 10 years. However, only modest increases were seen in the age group 60-69, and virtually no improvement was seen in patients older than 70. Since about half of MM patients are diagnosed when they are 60 or older, the lack of improvement in the eldest groups is a critical finding of the research.

"The rise in survival among MM patients in this study may be attributed to improvements in stem cell protocols, supportive care, and therapies with better efficacy and lower toxicity," said Hermann Brenner, MD, of the Division of Clinical Epidemiology and Aging Research, German Cancer Research Center, and lead author of the study. "However, the improvements among older patients in our analysis remained much more modest, suggesting a need to better understand the natural history and treatment options for multiple myeloma in this population."

### **Improved Survival in Multiple Myeloma and the Impact of Novel Therapies**

A second study conducted by researchers at the Mayo Clinic evaluated outcomes for a large group of MM patients by comparing survival among two date-specific analyses -- one from time of diagnosis and one from time of relapse -- to better understand trends in survival over time. "We wanted to understand if the new therapies available to these patients would translate directly into improved survival," said lead author Shaji Kumar, MD, of the Mayo Clinic.

The first analysis studied 387 patient records to compare disease relapses before and after December 31, 2000, based on the availability of thalidomide and subsequent clinical trials of bortezomib and lenalidomide. The second analysis was conducted over a 36-year period (1971-2006) with a larger group of 2,981 patients with newly diagnosed MM. These patients were divided by date of diagnosis (before or after January 1, 1997) to understand the significance of the novel advances in MM therapies.

Study results illustrated a dramatic improvement in survival among patients diagnosed in recent years, both from the time of diagnosis and from relapse after stem cell transplantation. Among the patients in the relapse group, the researchers noted a significant improvement in overall survival for patients relapsing after 2000, compared with those relapsing before 2000 (24 vs. 12 months). Patients relapsing before 2000 were less likely to receive a prompt transplant and more likely to have relapsed disease at the time of transplant and to have had more treatment regimens prior to transplant, compared with the group who relapsed after 2000, but the improvement seen in the recent times was independent of these differences.

In the larger group of newly diagnosed MM patients, diagnosis within the last decade translated into a 50 percent improvement in overall survival (45 vs. 30 months). Though the team divided the groups into six-year intervals to understand trends throughout the 36 years, they found no significant changes in survival until the most recent six-year period. When the team examined the relative impact of age and gender, they found that patients younger than 65 benefited the most from the recent improvements and that female patients fared slightly better.

"These results demonstrate a clear improvement in survival among myeloma patients in the last decade, and while supportive care may have contributed to this trend, we believe that the introduction of novel drugs played a major role," said Dr. Kumar. "This study also highlights the need to target the older patient population for innovative approaches to improve outcomes, considering these patients are more frail and more likely to have co-morbidities that may limit their treatment options. This progress reflects the effort of myeloma researchers worldwide, making myeloma a model for other cancers to follow."

*Adapted from materials provided by [American Society of Hematology](#).*