Treatment Outcomes and Health Care Resource Utilization in Patients With Newly Diagnosed Multiple Myeloma Receiving Lenalidomide-Only Maintenance, Any Maintenance, or No Maintenance: Results from the Connect MM Registry

Robert M. Rifkin, MD, FACP[1]; Sundar Jagannath, MD[2]; Brian G.M. Durie, MD[3]; Mohit Narang, MD[4]; Howard R. Terebelo, DO[5]; Cristina J. Gasparetto, MD[6]; Kathleen Toomey, MD[7]; James W. Hardin, PhD[8]; Lynne Wagner, PhD[9]; Kejal Parikh, BPharm, MS[10]; Safiya Abouzaid, PharmD, MPH[10]; Shankar Srinivasan, PhD[10]; Amani Kitali, MBA, MPH[10]; Faiza Zafar, MPAS[10]; and Rafat Abonour, MD[11]

[1]US Oncology Research, Rocky Mountain Cancer Centers, Denver, Colorado; [2]Mount Sinai Hospital, New York, New York; [3]Cedars-Sinai Samuel Oschin Cancer Center, Los Angeles, California; [4]US Oncology Research, Maryland Oncology Hematology, Columbia, Maryland; [5]Providence Cancer Institute, Southfield, Michigan; [6]Duke University Medical Center, Durham, North Carolina; [7]Steeplechase Cancer Center, Somerville, New Jersey; [8]University of South Carolina, Columbia, South Carolina; [9]Wake Forest University School of Medicine, Winston-Salem, North Carolina; [10]Celgene Corporation, Summit, New Jersey; and [11]Indiana University Simon Cancer Center, Indianapolis, Indiana

ABSTRACT

Purpose: Maintenance therapy after autologous stem cell transplantation (ASCT) improves clinical outcomes in multiple myeloma (MM), but the effect of continued treatment with lenalidomide-only maintenance, or any maintenance, on health care resource utilization (HCRU) is largely unknown.

Methods: Here we present an analysis of HCRU and clinical outcomes in a cohort of patients from the Connect MM registry, the largest, ongoing, observational, prospective US registry of patients with symptomatic newly diagnosed MM. In this study, patients with newly diagnosed MM who completed induction and single ASCT without subsequent consolidation received lenalidomide-only maintenance (n = 180), any maintenance (n = 256), or no maintenance (n = 165). HCRU (hospitalization, surgery/procedures, and concurrent medications [growth factors, bisphosphonates, or neuropathic pain medication]) was assessed starting from 100 days post-ASCT for up to 2 years.

Findings: Although the rates of hospitalization per 100 person-years were similar across groups at the end of years 1 and 2, the median duration of hospitalization was numerically longer with no maintenance. The rates of use of growth factors, bisphosphonates, and neuropathic pain medication were generally similar in all 3 groups. The receipt of any maintenance was associated with significantly reduced use of neuropathic pain medications during year 1. Of note, lenalidomide-only maintenance was associated with significantly longer progression-free survival (54.5 vs 30.4 months; hazard ratio [HR] = 0.58; 95% CI, 0.43–0.79; $P = 0.0005$) and overall survival (OS) (median OS not reached in either group; HR = 0.45; 95% CI, 0.28–0.73; $P = 0.001$) compared with no maintenance. Likewise, the group treated with any maintenance had significantly longer median progression-free survival (44.7 vs 30.4 months; HR = 0.62; 95% CI, 0.47–0.82; $P = 0.0008$) and OS (median OS not reached in either group; HR = 0.50; 95% CI, 0.33–0.76; $P = 0.001$) than did the group that did not receive maintenance.

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Implications: These findings suggest that in this largely community-based study population, post-ASCT maintenance therapy, including lenalidomide-only maintenance, improves clinical outcomes without negatively affecting HCRU. ClinicalTrials.gov identifier: NCT01081028. (*Clin Ther*. 2018;■:1–11)

Key words: health care, maintenance therapy, newly diagnosed multiple myeloma.

INTRODUCTION

In the United States, multiple myeloma (MM) is the second most common hematologic malignancy, accounting for an estimated 30,300 new diagnoses in 2016.[1] In recent years, the prognosis in patients with newly diagnosed (ND) MM has improved considerably, with response rates of >80% and median progression-free survival (PFS) exceeding 40 months.[2–6] New options for induction therapy, including the proteasome inhibitor bortezomib and the immunomodulatory drug lenalidomide, have changed the therapeutic paradigm of MM and offer hope for better clinical outcomes.[3,7]

Autologous stem cell transplantation (ASCT) is the standard of care for NDMM.[5,6,8–10] Despite improvements in treatment, ASCT is curative in only a subset of patients, with more than half of patients relapsing within 2 to 3 years of ASCT without post-ASCT treatment.[2,4,9,11,12] Thus, a key treatment goal for transplant-eligible patients with NDMM is to extend post-ASCT remission. Several randomized studies have demonstrated significant clinical benefit among patients who received lenalidomide maintenance therapy post-ASCT.[2,4,5] A recent meta-analysis of data from the studies CALGB 100104 (Cancer and Leukemia Group B), IFM 2005-02 (Intergroupe Francophone du Myelome), and GIMEMA RV-209 (Gruppo Italiano Malattie Ematologiche dell'Adulto) found a significant improvement in median overall survival (OS) that was independent of post-ASCT response and was consistent across subgroups examined.[13]

Although the clinical benefits of lenalidomide maintenance are well documented, the effect of continued lenalidomide treatment on health care resource utilization (HCRU) remains to be determined. HCRU data can be beneficial in characterizing the impact of various toxicities that may be associated with a continuous maintenance therapy and have the potential to affect the choice of maintenance therapy. Connect MM* is a large, noninterventional, US-based prospective registry of data on >3000 patients with NDMM from 250 academic-, government-, and community-based centers. Most patients (84%) were enrolled at community-based oncology centers. This registry was designed to examine diagnostic patterns, common first-line treatment regimens, and subsequent therapeutic strategies in patients with NDMM.[14,15] The present study analyzed data from the Connect MM registry to assess the effects of any maintenance, lenalidomide-only maintenance, and no maintenance on treatment outcomes and HCRU after ASCT in patients with NDMM.

PATIENTS AND METHODS

Registry Design and Patient Eligibility

As previously described,[15] Connect MM is an observational, prospective, multicenter registry (clinicaltrials.gov identifier: NCT01081028) that collects longitudinal data on patients with NDMM in the United States. Participation in the registry was voluntary, and to minimize bias, enrollment was competitive (ie, each consecutive patient was screened for enrollment). Medical treatment was administered per physician discretion, including all medications, follow-up visits, and any laboratory testing. Eligible patients were aged ≥18 years and were diagnosed with symptomatic previously untreated MM within 60 days before study entry. All patients who provided signed informed consent were eligible for registry inclusion. Patients were followed up quarterly for treatment and outcomes until study end or early discontinuation (eg, due to death, withdrawal of consent, or loss to follow-up). MM was evaluated per International Myeloma Working Group criteria.[16]

The registry comprises 2 cohorts. The analysis population in the present study included patients in cohort 1 (n = 1493), who enrolled between September 2009 and December 2011 (data cutoff, January 7, 2016) and underwent single ASCT. Median time from diagnosis to enrollment was 25 days. To reduce potential sources of bias, patients who received allogeneic and

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