Over the past decade, the median overall survival (OS) of patients with multiple myeloma (MM) has increased to approximately 6 to 8 years, in part, as a result of novel treatments.

Despite the introduction of the immunomodulatory drugs (IMiDs) bortezomib and lenalidomide and the proteasome inhibitors (PIs) bortezomib, most patients relapse and ultimately require novel or refractory therapies.

- An international Myeloma Working Group (IMWG) study published in 2010 determined that the median OS of patients refractory to bortezomib and lenalidomide (IMiD) was 4.4 months.

- Since the IMWG study, other therapies have been approved for relapsed and refractory MM. The status, including panobinostat (PXD0056) and carfilzomib (Kyprolis) in 2012.

- The phase III study of IMiD/dexamethasone for refractory MM identified that outcomes remain poor among patients with MM who are heavily pretreated and refractory. It is important to understand patient outcomes based on current real-world experience.

**OBJECTIVES**

To determine the median OS of patients with heavily pretreated or double refractory MM, and to assess the need for new therapies in refractory disease.

To evaluate the OS of patients with ≥3 prior lines of therapy (LOT) or those refractory to a PI and an IMiD from (A) the IMS LifeLink and (B) the OPTUM database.

**METHODS**

**Medical records were screened from two independent databases; both comprised all patients only.**

- The IMS LifeLink: 250,000 Electronic Medical Records database (IMS Health Incorporated, Danbury, CT) over the indexing period of 2000 to 2011;
- The OPTUM database (Optum, Eden Prairie, MN), over the period of 2000 to 2011.

**Inclusion criteria**

- Patients with a diagnosis of MM from 2000 to 2011 in the IMS LifeLink database, and from 2000 to 2014 in the OPTUM database.
- PI-RD, defined as ≥3 prior LOTs (including a PI and an IMiD) and showed disease progression within 60 days of completion of last LOT (but did not double-refractory).
- OS was defined as death or last to follow-up ≥30 days prior to end data.

**RESULTS**

**Overall Survival**

- Median OS of all eligible patients was 7.9 months in the IMS LifeLink dataset (95% CI, 6.9-8.9; Figure 1A) and 10.3 months in the OPTUM dataset (95% CI, 8.7-12.0; Figure 1B).

**Comparison of Median OS in Combined Datasets With Clinical Study Data**

- The eligibility criteria for enrollment in SIRIUS were similar to the cohort of patients identified by the historical analyses presented here.

- A naive comparison of OS Kaplan-Meier curve from the SIRIUS study (17.5 months) and the pooled analysis of both databases (7.9 months) suggests a survival benefit with Daratumumab vs lenalidomide and dexamethasone (difference of 10.2 months; Figure 2).

**CONCLUSIONS**

- Analyses of real-world data from 2 independent, 18 patient databases indicated that outcomes remain poor among patients with MM who are heavily pretreated and/or highly refractory, despite the availability and use of new PI and IMiD therapies.

- A median OS of approximately 7 months was observed in patients with ≥3 LOTs (including a PI and an IMiD) or those refractory to a PI and an IMiD.

- These data highlight the critical need for new treatments for patients with advanced MM and provide a point of reference against which novel agents can be evaluated.

**REFERENCES**