Multiple Myeloma Treatment Landscape From 2011 to 2017 in Alberta, Canada: Results From the Population-Based “Identifying Outcomes in Real-World Multiple Myeloma” (INFORMM) Study

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ABSTRACT

BACKGROUND
• The treatment landscape for patients with multiple myeloma (MM) has been evolving rapidly in recent years, with the availability of therapeutic options leading to improved responses and survival.2
• Use of autologous stem cell transplantation (ASCT) in combination with proteasome inhibitors and immunomodulatory drugs for induction and consolidation/maintenance therapies has become an integral part of the treatment of newly diagnosed MM (NDMM).2
• It is important to examine treatment patterns and outcomes in the real-world setting to establish a benchmark for future therapies; however, very few such studies exist.1
• The overall aim of the Identifying Outcomes in Real-World Multiple Myeloma (INFORMM) study is to describe the real-world NDMM population and treatment landscape in Alberta, Canada.

OBJECTIVE
To describe the baseline characteristics, and treatment patterns, including lines of therapy (LoT), duration of therapy (DoT), and time to treatment (TTNT), in patients with NDMM from the INFORMM study.

METHODS
Study Design and Population
• This is a retrospective observational study in patients diagnosed with MM between April 1, 2011 and March 31, 2017 (2011–2016 Canada Myeloma [INFORMM] study) to describe the real-world NDMM patient population and treatment landscape in Alberta, Canada.

• The study population consisted of adult (≥18 years old) patients with NDMM from Alberta with ≥ 1 year of pre-index baseline data (Figure 2).

Treatment Regimen Grouping and LoT
• Treatment regimens were classified as lenalidomide (LEN)-based, bortezomib (BORT)-based, LEN + BORT-based, or other; and LoT was defined using an algorithm modified from Song et al. (2016),5 based on whether patients had an ASCT in the first year of MM diagnosis (Figure 3).

Statistical Analysis
• Descriptive statistics, including frequencies, means, and standard deviations (SDs), were used to describe demographic and clinical characteristics.

• Frequencies and proportions were also used to describe the treatment regimens and patients within the study cohort, while DoT and TTNT calculations are presented as the mean ± SD.

• Comparisons between groups were performed using Student t-tests for continuous variables, whereas χ² tests were used for categorical variables.

RESULTS
• 1,729 NDMM cases were identified between 2011 and 2017 in Alberta (Figure 4).

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V.H.J. and J.T. are employees of Celgene Corporation – Canada; J.C., T.C., E.S., M.F., F.F.L., and J.T. are all employees of Celgene Corporation.

CONCLUSIONS
• Patients in the non-ASCT group were older and had higher Charlson Comorbidity Index scores and International Staging System (ISS) stage compared with patients in the ASCT group (Table 1).

• Among all treated patients, regardless of ASCT status, 742 (53.9%) patients received ASCT in first-line therapy, 347 (24.9%) patients received ASCT in second-line therapy, and 251 (18.2%) patients had ≥4 LoTs (Figure 5).

• Most patients began on a BORT-based regimen in first-line therapy that was used as the basis of second-line therapy or as LEN- and LEN + BORT-based regimens in subsequent LoT.

• Similar to DoT, the mean TTNT in ASCT patients receiving first-line maintenance therapy was substantially longer than those without maintenance therapy in the non-ASCT population (Table 3 and Figure 6).

• However, following ASCT, the mean TTNT becomes more comparable to non-ASCT patients in subsequent lines of therapy, regardless of whether patients were on maintenance therapy (Table 5).

LIMITATIONS
• No adjustments for patient baseline characteristics were performed when making comparisons between groups.

• Inclusion of underrepresented racial/ethnic and socioeconomic groups, and reduced reliance on self-report in administrative data may result in under- or overestimation due to missing data, misclassification, and algorithm errors.

• To reduce potential biases, algorithms used in interpreting data need to be validated against good-quality reference standards.

• This study aimed to describe the MM treatment landscape in Alberta, Canada, by leveraging administrative data collected in databases in the clinical setting.

• Findings showed that, among treated NDMM cases, around 24% of patients had ASCT.

• ASCT patients appeared to be more “ill” as indicated by lower mean age, comorbidity index, and ISS stage compared with non-ASCT patients.

• Treatment attrition rates were similar in both the ASCT and non-ASCT group from LoT 1 to LoT 2, although attrition rates were higher in the non-ASCT group from LoT 2 to LoT 3.

• Notably, patients benefitted from post-ASCT maintenance therapy regardless of the induction regimens used.

Figure 1. Data Sources Used in the INFORMM Study

Figure 2. Study Timeline for the INFORMM Study

Figure 3. Treatment Algorithm to Define LoTs in the INFORMM Study

Figure 4. INFORMM Study Cohort of Identified Patients With NDMM

Figure 5. Treatment Regimens and Attrition Rates for Each LoT

Figure 6. Duration of First- to Second-Line Therapy

Table 1. Baseline Demographics and Clinical Characteristics, Stratified by ASCT Status

Table 2. DoT for First-Line Therapy in Patients by First-Line Treatment Regimen

Table 3. TTNT by LoT

Table 4. DoT for Second-Line Therapy in Patients by Second-Line Treatment Regimen

Table 5. TTNT by LoT

Table 6. DoT for Third-Line Therapy in Patients by Third-Line Treatment Regimen

Table 7. TTNT by LoT

Figure 7. Flowchart of Patient Follow-Up from Baseline to Follow-Up Dates Through the INFORMM Study

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