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POSTER ABSTRACTS

652.MULTIPLE MYELOMA: CLINICAL AND EPIDEMIOLOGICAL

High Prevalence of Iron Deficiency Among Daratumumab-Treated Newly Diagnosed Multiple Myeloma Patients

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Background: Iron deficiency (ID), a common cause of anemia, is often overlooked among patients with hematologic malignancies given alternative etiologies. Daratumumab is an anti-CD38 monoclonal antibody used in the management of multiple myeloma (MM). Approximately 45% of patients on daratumumab are anemic. In a study of 22 patients with relapsed refractory AL amyloidosis treated with daratumumab, 40% developed iron deficiency requiring IV iron replacement. It is unclear whether iron deficiency in this setting is specific to AL amyloidosis, or whether it is universally seen with daratumumab treatment. In this study we evaluated iron deficiency parameters, including bone marrow iron stores, in MM patients treated with daratumumab.
Methods: We conducted a retrospective study to evaluate the prevalence of ID among newly diagnosed MM patients who were treated uniformly in a phase II study with the combination of daratumumab, ixazomib, lenalidomide and dexamethasone conducted at our center. Laboratory values of ferritin, hemoglobin and MCV were extracted from the medical records at trial enrollment and at 1-year from treatment initiation. ID was defined as ferritin <30 mcg/L. Bone marrow iron stores were assessed at pre-trial and 1-year from therapy initiation by Prussian blue stain of bone marrow clot sections, with grade 0 (absent iron) or grade 1 (trace to low iron) considered as depleted iron storage.
Results: Among 54 included patients, 2 (3.7%) had ferritin <30 mcg/L at trial-enrollment, while 27 (50%) developed ID within 1 year and 33 (61%) became iron deficient during their treatment course. All patients (100%) had lower ferritin at 1 year compared to pre-trial value. The median reduction of ferritin at 1-year was 109 (IQR: 41-239 mcg/L), a decrease by 75% (IQR:56- 86%) from baseline value. Fifteen patients (28%) received IV or oral iron replacement, and 4 were already on iron-repletion before the 1-year landmark assessment. The median ferritin improved from 16 to 84 mcg/L (p<.0001) following iron replacement. Forty patients (74%) had improved hemoglobin at 1-year compared to baseline correlated to disease response to therapy. The median increment in hemoglobin was 1.1 (IQR: -0.3 - 2.7 g/dL). Hemoglobin at 1-year was higher in patients having ferritin ≥ 30 mcg/L compared to the ID group: 13.5 (IQR: 12.3-14.1 g/dL) vs 12.8 (IQR: 12.3-13.4 g/dL), p=.05. BM samples from pre-trial (n=37) and 1-year on-trial (n=36) were available for iron staining. Depleted iron storage was more frequent at1-year compared to baseline (63.9% vs 40.5%, p<.05). The median ferritin was lower in patients with iron depleted versus non-iron depleted BM: 58 (IQR: 31-120 mcg/L) vs 243 (IQR: 125-486 mcg/L) at baseline, p=.0002; 27 (IQR: 16-41 mcg/L) vs 59 (IQR: 19-245 mcg/L) at 1-year landmark, p=.07. Comparisons of laboratory markers at initiation and after 1-year on daratumumab trial are listed in Table 1.
Conclusions: Our study demonstrated a high prevalence of ID among patients receiving daratumumab-based treatment for newly diagnosed MM. While some decrease in ferritin over treatment course may be caused by myeloma disease control and improved systemic inflammation, this study should increase awareness for ID among MM patients treated with daratumumab.

Future studies are needed to better understand the possible role of daratumumab in the pathogenesis of ID in MM and other plasma cell disorders.

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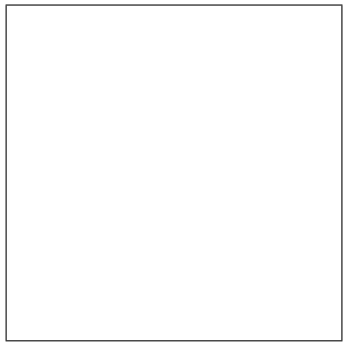

Figure 1

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