

# Refractory Anemia

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Dear editor,

**T**he term refractory anemia (RA) may be confusing to those who are not hematologists. RA should be well defined because it means more than what it says. RA is defined as anemia that is not responsive to therapy except transfusion.<sup>[1]</sup> The term RA is used to rule out those types of anemia with a known cause such as anemia of systemic diseases (liver and kidney) and anemia of inflammation even though they are considered refractory to therapy.<sup>[2]</sup> RA with cellular or hypercellular bone marrow was formerly used to exclude aplastic anemia. Now, the diagnosis of aplastic anemia describes a hypocellular or acellular marrow, except in transient stage. In practice, RA with cellular or hypercellular bone marrow is used to involve patients with anemia and simultaneously express pancytopenia without splenomegaly.<sup>[3]</sup> RA is recently considered in the main classification group of myelodysplastic syndromes (MDS). RA has been recognized in many conditions such as anemia transfusion dependent (sickle cell disease, thalassemia major, and aplastic anemia), bone marrow infiltration diseases (leukemia, lymphoma, myeloma, metastatic diseases, myelofibrosis, and granulomatous diseases), secondary idiopathic sideroblastic anemia, congenital dyserythropoietic anemias, and MDS.<sup>[4]</sup> In other words, RA is recognized as a low risk of MDS with monolineage dysplasia associated with anemia, dyserythropoiesis, and decreased the percentage of blast cells in bone marrow and/or peripheral blood. RA represents approximately 5–10% of MDS cases and usually affects elderly people with no known etiology recognized so far. According to the recent World Health Organization recommendations, to setup the diagnosis of RA, all other potential etiologies of erythroid abnormalities should be excluded. These etiologies include immunologic diseases, drugs and chemicals, congenital abnormalities, vitamin deficiencies, and viral infections.<sup>[5]</sup> RA in case of MDS is characterized by anemia, dyserythropoiesis in > 10% of erythroid precursor and may associate

with < 15% ring sideroblasts of the nucleated erythrocytes.<sup>[4]</sup> RA is categorized into primary RA which is characterized by a qualitative disturbance of erythropoiesis with functional and morphological abnormalities in association with variable degree of myelopoiesis and chronic RA in which the general hematopoietic abnormalities are particularly noted.<sup>[2]</sup> Individuals with RA should be managed according to the underlying etiology of RA. RA may have a long and stable clinical course without intervention to treatment. Therefore, some patients with RA even children become susceptible to infection often due to neutropenia or transfusion dependency. Some reports have proposed immunosuppressive drugs (corticosteroids and cyclosporine) probably effective in subset of individual with MDS-RA. Chemotherapy is rare being used, and hematopoietic stem cell transplant is the curative way.<sup>[6]</sup>

Overall, this subtracting will add augmented knowledge of RA in clinical practice.

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