Leukine® (sargramostim) – New indication, safety updates

- On March 29, 2018, the FDA announced the approval of Partner Therapeutics' Leukine (sargramostim) to increase survival in adult and pediatric patients from birth to 17 years of age acutely exposed to myelosuppressive doses of radiation (Hematopoietic Syndrome of Acute Radiation Syndrome [H-ARS]).

    - Leukine is also approved for the following:

        — Acute myeloid leukemia (AML) following induction chemotherapy
        — Autologous peripheral blood progenitor cell mobilization, collection, and bone marrow transplantation (BMT)
        — Allogeneic BMT
        — Treatment of delayed neutrophil recovery or graft failure in allogeneic or autologous BMT

    - Acute radiation syndrome (ARS) is an acute illness caused by irradiation of the entire body (or most of the body) by a high dose of penetrating radiation in a short period of time, usually a matter of minutes. Patients exposed to high doses of radiation will develop myelosuppression. This results in neutropenia and thrombocytopenia.

    - Efficacy studies of Leukine were not conducted in humans with ARS for ethical and feasibility reasons. In animal studies, Leukine was shown to increase survival when administered up to 48 hours after total body irradiation exposure at doses expected to be fatal to 50% of those exposed subjects under conditions of minimal supportive care.

    - The *Contraindications* section has been updated to state that Leukine should not be administered to patients with a history of serious allergic reactions, including anaphylaxis, to human granulocyte-macrophage colony stimulating factor such as sargramostim, yeast-derived products, or any component of the product. Anaphylactic reactions have been reported with Leukine.

        — Information regarding patients with excessive leukemic myeloid blasts in the bone marrow or peripheral blood (≥ 10%) and concomitant use with chemotherapy and radiotherapy have been removed from the *Contraindications* section.

    - The *Warnings and Precautions* section was updated to include infusion related reactions and risk of severe myelosuppression when administered within 24 hours of chemotherapy or radiotherapy.

        — Respiratory symptoms, renal and hepatic dysfunction, use in patients receiving purged bone marrow, use in patients previously exposed to intensive chemotherapy/radiotherapy, and use in patients with malignancy undergoing Leukine-mobilized peripheral blood progenitor cells collection have been removed from the *Warnings and Precautions* section.

    - The recommended dose of Leukine for acute exposure to myelosuppressive doses of radiation is a subcutaneous injection administered by either a healthcare provider or patient once daily as follows:

        — 7 mcg/kg in adult and pediatric patients weighing greater than 40 kg
        — 10 mcg/kg in pediatric patients weighing 15 kg to 40 kg
        — 12 mcg/kg in pediatric patients weighing less than 15 kg

    - Administer Leukine as soon as possible after suspected or confirmed exposure to radiation doses greater than 2 gray.

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- Estimate a patient's absorbed radiation dose (ie, level of radiation exposure) based on information from public health authorities, biodosimetry if available, or clinical findings such as time to onset of vomiting or lymphocyte depletion kinetics.

- Obtain a baseline complete blood count (CBC) with differential and then serial CBCs approximately every third day until the ANC remains greater than 1,000/mm^3 for three consecutive CBCs. Do not delay administration of Leukine if a CBC is not readily available.

- Continue administration of Leukine until the ANC remains greater than 1,000/mm^3 for three consecutive CBCs or exceeds 10,000/mm^3 after a radiation-induced nadir.

- Refer to the Leukine drug label for dosing information for all other indications.

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