Transfusion Reactions

A case study of an ocular adverse event during autologous transplantation

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BACKGROUND: Transfusion of blood products is an integral part of hematopoietic stem cell transplantation. Because of the risk for myelotoxicity during conditioning regimens, adequate transfusion support is needed. Typical signs and symptoms of transfusion reactions include fever, chills, hives, and itching. Uncommon symptoms, such as conjunctival erythema, periorbital itching, erythema, and edema, can also occur.

OBJECTIVES: The purpose of this article is to describe atypical transfusion-related reactions in a patient undergoing stem cell transplantation.

METHODS: This article presents a case study of a patient with cancer undergoing autologous stem cell transplantation who experienced an adverse ocular reaction following platelet transfusion.

FINDINGS: Ensuring that oncology nurses are proactive in identifying and managing symptoms that can result from atypical transfusion reactions can reduce morbidity and mortality and improve overall patient care outcomes.

KEYWORDS
adverse events; stem cell transplantation; platelet transfusion; ocular reaction

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HEMATOPOIETIC STEM CELL TRANSPLANTATION (HSCT) is an aggressive therapy that is used for the treatment of hematologic malignancies, solid tumors, bone marrow failure, autoimmune diseases, and inherited metabolic and immunodeficiency disorders (American Cancer Society [ACS], 2016). Autologous and allogeneic are two of the most common types of stem cell transplantation. The patient's own stem cells are used during autologous transplantation, whereas donor stem cells are used with recipients of allogeneic transplantations (ACS, 2016). Because conditioning regimens, such as ablative chemotherapy, can result in potentially fatal bone marrow myelosuppression, adequate support through the transfusion of blood products is an integral care component for patients undergoing HSCT. Blood product transfusions prior to stem cell engraftment can prevent HSCT-related morbidity and mortality; however, risk factors, such as allergic reactions and sepsis, and adverse events may jeopardize outcomes in patients undergoing HSCT (de Freitas, de Almeida, & Guedes, 2014).

Autologous stem cell transplantation can be used to treat leukemia, lymphoma, multiple myeloma, testicular cancer, neuroblastoma, and autoimmune disorders. Stem cells are collected or harvested peripherally from the bloodstream or bone marrow. Tandem transplantations, which are often used to treat testicular cancer and multiple myeloma, are administered to patients using their own stem cells following two or three cycles of high-dose chemotherapy (ACS, 2016). Ensuring that oncology nurses can recognize adverse events of transfusions can help to minimize transfusion-associated morbidity and mortality among patients with cancer.

Transfusion-Related Reactions

Transfusion-related reactions (TRRs) are potential adverse events that occur either during or following the administration of blood transfusions or transfusion components (Webb, Norris, & Hands, 2018). TRRs can be acute (within 24 hours of administration) or delayed (at least 24 hours after administration). Acute TRRs can include acute hemolytic reactions, febrile nonhemolytic reactions, allergic reactions, transfusion-related acute lung injury, transfusion-associated circulatory overload, hypotensive transfusion reactions, and bacterial contaminations (Case