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گزارش مورد
(Case Report)

Allogenic Bone Marrow Transplantation in an AML Patient with Cardiovascular Disease Background: A Case Study

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Abstract

Acute myeloid leukemia (AML) is defined by increase in the number of myeloid cell lineages in peripheral blood. There are several established protocols for curing AML, each with its own limitations. This paper is a brief report on successful treatment of a middle-aged female AML patient with cardiovascular disease background, by using Allogenic Bone Marrow Transplantation.

Keywords: Acute Myeloid Leukemia, Bone Marrow Cell Transplantation, Cardiovascular disease, Case Study

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1. Introduction

According to the WHO's definition, acute myeloid leukemia (AML) is characterized by an increase in the number of myeloid cells; so that, the myeloid blasts in peripheral blood or bone marrow at least compose 20% of blood cell population and lead to suppression of other cell lines (1, 2). Age plays an important role in choosing the preferred therapeutic approach for these patients. Approximately, 70% to 80% of young patients enter the complete recovery phase after some combination therapy, while this rate is about 50% in older patients (3). Bone marrow transplantation is one of the therapeutic approaches, which can be a choice according to the risk of the disease. Indeed, allogeneic bone marrow transplantation, also called hematopoietic stem cell transplant (HSCT), is recommended for the patients, whom other therapeutic approaches may have a high-risk for them (4). Previous studies have shown that HSCT has a lower mortality risk for the AML patients, who have a cardiovascular disease, simultaneously. Thus, using HSCT for these patients decrease the risk of Cardiotoxicity (e.g. arrhythmia, cardiac arrest, cardiomyopathy, heart failure, tamponade, ischemic heart disease, vascular disease, and stroke) compared to other therapeutic approaches, such as chemotherapy (5). The best bone marrow donors for HSCT are usually the patient's siblings, parents, and children, since they have probably the most similarity to the patient, considering their human leukocyte antigen (HLA) genes. HLA genes have a great importance for doing a successful HSCT (6).

According to the literature above, this study aimed to use HSCT for an AML patient with a cardiovascular disease background.

2. Case

The case was a 46-year-old female patient with known AML. The patient also had a large ulcerative cervix mass, originated from the AML according to the examinations. Full-body CT-scan showed a calcified density at the peripheral region of the left lung, suggesting calcified granuloma, Hemangiomas at segments 4a, 6 and 8 of liver, and a simple cyst in segment 7. Additionally, echocardiography showed moderate left ventricular systolic failure. Genetic assessments report showed that the most appropriate donor was the patient's son, who had a similar mismatch to the patient in HLA-A gene (HLA-A*1101).

Considering all the conditions mentioned above, it was decided to do HSCT for the patient, using her son's bone marrow. The outcome of the HSCT operation was satisfying. So that, the patient has responded to bone marrow transplantation and the disease subsided. The general health status of the patient was still well after following up for … months.

3. Discussion

Choosing the appropriate therapeutic approach for elderly patients with risk factors is a major challenge. Current study could find a quite appropriate therapeutic approach, which successfully cured an AML high-risk patient with cardiovascular disease background. We assume that on-time diagnosis, making decision based on a comprehensive knowledge about the patient's condition, and taking action instantly were the reasons that this therapy was successful.

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