Olgu Sunumu

Multiple Myeloma Emerging After Chemotherapy for Breast Cancer: Case Presentation and a Brief Review

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Abstract

Breast cancer is the most common cancer of women. Multiple myeloma is characterized by monoclonal proliferation of plasma cells. There are malignancies secondary to chemotherapy and it has long been recognized. We describe a woman presented with breast cancer and after chemotherapy and radiotherapy she had achieved remission. Because of complaints about skeletal discomfort we reevaluated the patient and diagnosed multiple myeloma and decided to treat with chemotherapy and bone marrow transplantation. In this case we determined multiple myeloma after the administration of chemotherapy for breast cancer and there was not another etiologic factor except antineoplastic agent administration.

Key words: Breast cancer, chemotherapy, multiple myeloma

Introduction

Breast cancer is one of the most common cancers all over the world and the most common cancer of women. In spite of its high prevalence, mortality rates have reduced because of the advances in screening and treatment in recent years (1-5).

Multiple myeloma is a hematologic malignancy characterized by monoclonal plasma cell proliferation in the bone marrow. Its incidence is about 3-4/100.000 in western countries and responsible for about 1% of all malignancy related deaths (6-8).

In the literature there are many secondary malignancy cases secondary to chemotherapy and it has long been recognized. Here we present this case, because we determined multiple myeloma after the administration of chemotherapy for breast cancer and there was no another etiologic factor or genetic tendency for multiple myeloma.

Case Report

A 50 year-old woman presented with mass lesion in the left breast 8 years ago. Incisional biopsy was evaluated as medullary carcinoma. She has taken neoadjuvant Cyclophosphamide, epirubicin, fluorouracil (CEF) chemotherapy regimen for 3 cycles before left modified radical mastectomy and axillary lymph node dissection. Pathologic evaluation of the operation material was also reported as infiltrative medullary carcinoma and there was no attached lymph node. After the operation she has taken CEF chemotherapy regimen for 3 cycles and radiotherapy for 35 days. She had achieved remission for 8 years. Because of her complaints about skeletal discomfort we reevaluated the patient and determined anemia and high globulin levels. Bone marrow aspiration and biopsy results were concordant with our clinical suspicion of myeloma and reported as plasma cell infiltration. In serum protein electrophoresis there was a gamma band spike. Erythrocyte sedimentation rate was 92 mm/h and the total immunoglobulin G and kappa light chain levels were high (4420 and 1310 mg/dl respectively). Her karyotype was 46,XX and at the end of genetic evaluation by fluorescein in situ hybridisation in order to determine genetic tendency for multiple myeloma; IgH/bcl2, t(11;14)(q13;q32), t(4;14)(p16.3;q32) 17p13 (p53), 13q14.3 parameters were all negative. After the diagnosis of multiple myeloma we treated the patient with

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Makalenin Geliş Tarihi: 17.04.2014
Makalenin Kabul Tarihi: 30.10.2014

melphalane- prednisolon (MP) chemotherapy for 4 cycles. Addition to this chemotherapy we planned autologous bone marrow transplantation for the patient.

Discussion

Breast cancer is one of the most prevalent malignancies in the world and the most common cancer of women. In spite of its high prevalence, mortality rates have reduced because of the recent advances in screening and treatment (1-5). Risk factors for breast cancer are female gender, advanced age, race and ethnicity (Asian women have relatively lower risk, African women have relatively more aggressive tumors), genetic factors (BRCA1 and 2, p53, PTEN, ATM mutations increases the risk of breast cancer), cancer history (women having breast cancer have approximately five times likelihood to a new breast neoplasm; breast cancer in especially first degree relatives increases the risk), menstrual periods (menarche before age 12 and menopause after age 55 increases the risk), delayed child birth (after age 30 increases the risk), previously diagnosed atypical hyperplasia and carcinoma in situ conditions (increases the risk), number of breast biopsies, previous radiation exposure, hormone replacement therapies, not-breast feeding, body mass index >25 kg/m2, high fat diets, alcohol and tobacco consumption, lack of physical exercise (9). Prognostic factors for breast cancer are clinical (very young age, African ethnicity) and pathological factors (size, degree of differentiation, age, lymph node affection), luminal A phenotype (relatively good prognosis due to high expression of oestrogen receptor gene and low HER2 expression), luminal B and C (relatively poor prognosis due to low oestrogen receptor and presence of HER2 expression), HER2 subtype (low expression of ErbB2 gene, non-differentiated tumor without hormone receptor), the basal-like phenotype (no expression of hormone receptor or HER2 but high expression of endothelial growth factor receptor and proliferation genes related to BRCA1 mutations) (10). Anthracycline and taxane-based combination adjuvant chemotherapy regimens are recommended (11). Tumors with overexpressing HER2 should be treated with trastuzumab addition to chemotherapy. In women with tumor less than 1 cm with hormone receptor expression and without afflicted lymph node, adjuvant chemotherapy is not necessary. In postmenopausal women with hormone receptor positive tumors hormone therapy should include aromatase inhibitors. On the other hand tamoxifen is the standard therapy for premenopausal women with hormone receptor positive tumors. In locally advanced tumors and in order to reduce the size of tumor after conservative surgery, neoadjuvant chemotherapy is recommended. Tumors with high hormone receptor expression, well differentiation and lobular histology are generally unresponsive to neoadjuvant chemotherapy. In these cases hormone therapy or surgery should be considered (1-5,9,10). PI3K/AKT/MTOR inhibitors, novel agents targeting HER2, multiple tyrosine kinase inhibitors, novel microtubules inhibitors, PARP inhibitors, EGFR inhibitors, RAS/MEK/ERK inhibitors, HSP90 inhibitors, HAD inhibitors, SRC inhibitors, androgen receptor inhibitors, IGF-1R inhibitors are the novel therapeutic approaches for breast cancer (12).

Multiple myeloma is a hematologic disorder characterized by monoclonal proliferation of plasma cells in the bone marrow that secrete immunoglobulins. For the diagnosis of myeloma it is necessary to detect >10 % plasma cells in bone marrow or tissue biopsy. Its incidence is approximately 3-4/100.000 and responsible for about 1% of all malignancy related deaths. According to the criteria of International Myeloma Working Group for symptomatic myeloma following manifestations should be observed: hypercalcemia, renal insufficiency, anemia or bone lesions. In the treatment of multiple myeloma high-dose chemotherapy (melphalan-prednisolon, combination of alkylating agents with vinca alkaloids, nitrosoureas and anthracyclines) and bone marrow transplantation is the major issue. Additionally thalidomide becomes a popular option in myeloma treatment recently. In the future immunotherapeutic agents are expected to be new options for myeloma treatment (6-8).

In the literature there are many secondary malignancy cases secondary to chemotherapy and it has long been recognized. A multiple myeloma case emerged after the chemotherapy composed of cisplatin, docetaxel, vinorelbine, topotekan for non small cell lung cancer was reported by Marinopoulos et al. (13). It is also known that leukemia after chemotherapy for malignities is a serious problem. Carli et al. (14) proposed that there is a relationship between topoisomerase-II inhibitor based chemotherapy for breast cancer and increased therapy-related leukemia cases. Sonneveld et al. (15) reported two cases who developed hematologic malignancy after intravesical chemotherapy for superficial bladder cancer with etoglucid, doxorubicin and mitomycin C. Wright et al. (16) declared that pelvic radiation exposure was associated with an

increased risk of secondary leukemia but did not appear to increase the risk of multiple myeloma. Also Waller et al. (17) reported a patient with small cell lung cancer who was treated with combination of chemotherapy, autologous peripheral blood progenitor cell transplantation and adjuvant radiotherapy. After a 28 months remission interval he was diagnosed with chronic myelogenous leukemia.

In this case report we present a 50 year-old woman with infiltrative medullary carcinoma. She has taken CEF chemotherapy for 3 cycles before and after modified radical mastectomy and axillary lymph node dissection and radiotherapy after operation. She was on remission for 8 years. Because of her complaints about skeletal discomfort and anemia and high globulin levels in labaratory evaluation, we diagnosed multiple myeloma and after the diagnosis we treated the patient with melphalane-prednisolon chemotherapy for 4 cycles and planned autologous bone marrow transplantation. Here we present this case, because we determined multiple myeloma after the administration of chemotherapy for breast cancer and there was no another etiologic factor or genetic tendency for multiple myeloma.

Meme Kanseri için Verilen Kemoterapi Sonrası Gelişen Multipl Myelom: Vaka Takdimi ve Kısa Bir Derleme

Özet

Meme kanseri kadınlarda en sık görülen kanser türüdür. Multipl myelom ise tek hücre tipi kökenli plazma hücrelerinin aşırı çoğalması karakterli bir hastalıktır. Literatürde kemoterapiye ikincil bir çok malignite bildirilmiştir. Sunduğumuz olguda kemoterapi ve radyoterapi sonrası remisyon sağlanmıştır. İskelet sistemi ile ilgili yakınmaları nedeniyle değerlendirilen olguya multipl myelom tanısı konup, ve kemik iliği nakli planlanmıştır. Bu olguyu meme kanseri nedeniyle verilen kemoterapi sonrasında multipl myelom tanısı konması ve antineoplastik ilaç uygulaması dışında başka herhangi bir etyolojik faktör saptanmaması nedeniyle sunmaktayız.

Anahtar kelimeler: Meme kanseri, kemoterapi, multipl myelom

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