Management of Inflammatory breast cancer: current concepts

Awad Ali M. Alawad

ABSTRACT

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Inflammatory breast cancer (IBC) is considered as the most aggressive type of locally advanced breast cancer that carries an appreciably poor prognosis. Sir Charles Bell described the first case of IBC in literature. It was reported and published in 1814 by Sir Charles Bell [1]. Clinically, IBC is defined by characteristic features, including rapid onset within short time, erythema, edema of the breast, and a “peau d’orange” appearance to most areas of breast skin. Moreover, patients presented with positive metastatic lymph node involvement and up to one fourth of patients have distant metastases at time of diagnosis [2]. Pathologically, the presence of dermal lymphatic tumor emboli is considered as the hallmark of IBC. Previously, single modality treatment to manage IBC had failed. The majority of patients developed recurrence and/or metastases within short time, and 5-year survival rate was less than 5%.

Today, the general consensus is that patients with IBC without proof of metastases at the time of diagnosis should receive neoadjuvant chemotherapy followed by surgery followed by radiotherapy. For patients with human epidermal growth factor receptor (HER2) disease, trastuzumab (an antibody targeting HER2) is recommended. For patients with hormone receptor-positive disease, hormonal therapy is indicated. Regarding chemotherapy, the sequence of taxane-based chemotherapy followed by anthracycline-based chemotherapy is the cornerstone of primary

chemotherapy for IBC [3]. Among patients with IBC, response to neoadjuvant chemotherapy plays a comparable prognostic role to that observed among patients with non-IBC.

Mastectomy is generally considered an important part of the multimodality treatment of IBC. The only method of definitive surgery offered to patients with IBC following neoadjuvant chemotherapy is modified radical mastectomy. Skin-sparing mastectomy and breast conserving surgery are contraindicated for patients with IBC [4]. Postmastectomy chest wall radiotherapy (RT) is generally indicated for patients with inflammatory breast cancer who are treated with neoadjuvant chemotherapy.

Understanding the biological characteristics of the disease has allowed for the development of targeted therapies (e.g., trastuzumab and lapatinib) that are improving the outcome of this aggressive disease. Human epidermal growth factor receptor 2 (HER2) positive patients should receive HER2 targeted therapy with neoadjuvant chemotherapy. Trastuzumab should be continued after surgery to complete one year of treatment [5]. Lapatinib is an orally active small molecule that reversibly inhibits the tyrosine kinase component of both HER2 and epidermal growth factor receptor-1 (ErbB-1). A recent research showed that lapatinib in conjunction with chemotherapy reduces the risk of disease progression by 50% in women with inflammatory breast cancer whose disease had progressed on trastuzumab-containing chemotherapy regimens [5]. Other agents that are presently being evaluated for the treatment of IBC include antiangiogenic agents and Ras pathway inhibitors. IBC is known to be highly vascular that express a number of angiogenic factors such as vascular endothelial growth factor (VEGF). This encouraged a number of studies looking at the role of anti-VEGF agents (e.g., bevacizumab) combined with chemotherapy in the treatment of IBC, with hopeful results [5, 6].

Combinations of neoadjuvant chemotherapy, mastectomy, and radiotherapy have led to an improved prognosis. However, the overall five-year survival rate for patients with IBC is still very low, at ~20% [7]. Proper management of IBC requires close coordination

Awad Ali M. Alawad

Affiliations: Assistant professor, Department of Surgery, University of Medical sciences and Technology, Khartoum, Sudan.

Corresponding Author: Awad Ali Mohamed Ahmed Alawad, Department of Surgery, Faculty of Medicine University of Medical Sciences and Technology, Postal address: P. O. Box 12810, Khartoum, Sudan; Ph: +966509246018; Email: awadali82@hotmail.com

Received: 04 May 2015

Published: 01 July 2015

among surgical, radiation oncologists, radiologists, and pathologists. It is important for health institutions to pool resources by establishing a tumor registry for collecting data from patients with IBC worldwide to deal with this fatal disease because of the infrequency of IBC.

How to cite this article

Alawad AAM. Management of Inflammatory breast cancer: current concepts. Int J Case Rep Images 2015;6(7):460–461.

doi:10.5348/ijcri-201502-ED-10002

Author Contributions

Awad Ali M. Alawad – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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