

# Primary systemic therapy and whole breast irradiation for locally advanced breast cancer: A systematic review

Orit Kaidar-Person<sup>a</sup>, Abraham Kuten<sup>b</sup>, Yazid Belkacemi<sup>c,\*</sup>, On behalf of AROME<sup>1</sup>

<sup>a</sup> Division of Oncology, Rambam Health Care Campus, and Rappaport Faculty of Medicine,  
Technion-Israel Institute of Technology, Haifa, Israel

<sup>b</sup> Italian Hospital, Haifa, Israel

<sup>c</sup> AP-HP, Department of Radiation Oncology and Breast Center of Henri Mondor University  
Hospital and University Paris-Est Creteil (UPEC), Creteil, France

Accepted 23 April 2014

## Contents

1. Introduction	144
2. Methods	144
3. Combined chemoradiotherapy schedules in the neoadjuvant setting	144
3.1. Neoadjuvant concurrent chemoradiotherapy	144
3.2. Neoadjuvant sequential chemoradiotherapy	145
4. Locoregional results of neoadjuvant chemoradiotherapy	147
4.1. Pathological complete response	147
4.2. Nodal down staging	147
4.3. Neoadjuvant chemoradiotherapy before salvage surgery	149
4.4. Impact of tumor biology on response to neoadjuvant chemoradiotherapy	149
4.4.1. Hormone receptors and proliferation	149
4.4.2. HER2 status	149
5. Recurrence and survival after neoadjuvant chemoradiotherapy	150
6. Acute and late toxicity of neoadjuvant radiochemotherapy	150
6.1. Impact of the type of chemotherapy schedule	150
6.2. Impact of the time to surgery	150
7. Conclusions	151
Conflict of interest	151
Funding	151
Reviewers	151
Acknowledgements	151
References	151
Biographies	152

## Abstract

The current management of locally advanced breast cancer (LABC) is based on tri-modality treatment including chemotherapy, radiotherapy and surgery. The concept of preoperative concurrent or sequential chemoradiation for LABC was initially reported more than a decade ago; however this concept did not gain popularity because of the low benefit/risk ratio and the lack of strong data supporting the concept. The

\* Corresponding author at: HU-Henri Mondor, 51 Avenue Mal De Lattre de Tassigny, 94010 Créteil, France. Tel.: +33 14981 4522; fax: +33 14981 2589.  
E-mail address: [yazid.belkacemi@hmn.aphp.fr](mailto:yazid.belkacemi@hmn.aphp.fr) (Y. Belkacemi).

<sup>1</sup> Association of Radiotherapy & Oncology of the Mediterranean Area, [www.aromecancer.org](http://www.aromecancer.org).

purpose of the current systematic review was to explore the published data about preoperative chemoradiation (sequential and/or concurrent) using whole breast irradiation in terms of toxicity and outcome.

© 2014 Elsevier Ireland Ltd. All rights reserved.

**Keywords:** Breast cancer; Chemoradiation; Chemotherapy; Irradiation; Neoadjuvant; Preoperative; Radiotherapy

## 1. Introduction

The current management of locally advanced breast cancer (LABC) is based on tri-modality treatment including chemotherapy, radiotherapy and surgery. The concept of concurrent or sequential chemoradiation for LABC was evaluated in the neoadjuvant setting using various chemotherapy regimens and several radiotherapy techniques (external beam, brachytherapy) and dose-fractionation schedules. Initial reports of neoadjuvant chemoradiotherapy (CT-RT) were published more than a decade ago [1–4]; however, this concept did not gain popularity because of the low benefit/risk ratio and the lack of strong data supporting its routine use.

The aim of neoadjuvant treatment for breast cancer is to downsize the tumor in order to preserve the breast with clear pathological margins and potentially to achieve pathological complete response (pCR) that could impact outcome in some subgroups of patients. Studies of neoadjuvant CT-RT for LABC can be subdivided according to whether the treatments (chemotherapy and radiotherapy) were given concomitantly or sequentially prior to surgery and whether radiotherapy was given to the whole breast or to the tumor only (partial breast irradiation). The surgical approach also differs between the studies; some aimed to increase the rates of breast conservation while others included inoperable patients or patients who were planned to undergo mastectomy.

The purpose of the current systematic review was to explore the published data about preoperative CT-RT (sequential and/or concurrent) applying whole breast irradiation for LABC, to better understand why this concept did not gain popularity and to assess if there is a place to re-evaluate this treatment in the era of molecular understanding of breast cancer.

## 2. Methods

With the assistance of two medical librarians at our institution, an Ovid Medline search was performed, initially by using “neoadjuvant therapy” and “breast neoplasms”, both as major topics. Thereafter, both the subheadings were searched with “radiotherapy” or “irradiation” as major MeSH terms. Next, “radiotherapy” was combined with the MeSH term “breast neoplasms”. The search was limited to the past 10 years and to the English language, and resulted in 227 articles that were first evaluated by title and then by abstract. SciFinder was used as the second database. EMBASE search was not conducted due to limited access.

Full text articles were retrieved and reviewed for the selected titles and abstracts. Reference lists of the retrieved articles were searched for additional publications. The final reference list was generated on the basis of relevance to the subject of the review. Only studies of preoperative chemotherapy and external whole breast radiotherapy (conventional doses) were included. We included only data from published articles and not from abstracts presented at scientific meetings; we did not include preoperative brachytherapy and or preoperative low-dose external radiotherapy or preoperative radiotherapy alone. The results of the search did not enable us to perform a high quality meta-analysis due to the heterogeneity of the trials, and a major flaw of the published data in our view is that there are numerous publications coming from a limited number of institutions.

## 3. Combined chemoradiotherapy schedules in the neoadjuvant setting

### 3.1. Neoadjuvant concurrent chemoradiotherapy

The largest report of neoadjuvant CT-RT, which summarized several decades of experience, came from South India. Shanta et al. [1] reported a large retrospective series of 1117 consecutive cases of LABC treated by neoadjuvant CT-RT (concomitant CMF or ECF or ACF). The pCR rate, which was among the highest reported in the literature for neoadjuvant CT-RT, was 45.1%. pCR rates were correlated to the T stage; those with T2 (T1 not included) had a higher rate of pCR as compared to T4 with 35.6%. The best survival rate was seen among those who had pCR at the primary site and the axilla (tumor and node negative postoperatively). Interestingly, in patients who achieved pN0, the risk of disease recurrence and death was reduced by half compared to patients with pN1, irrespective of tumor complete response [1].

Skinner et al. [2] evaluated the use of continuous 5-fluorouracil (5-FU) with radiotherapy in inoperable non-inflammatory LABC in a prospective single arm study. 5-FU was given at a dose of 200 mg/m<sup>2</sup> as a continuous infusion for 8 weeks; radiotherapy to the whole breast and axilla was started on day 15 of chemotherapy and delivered a total dose of 50 Gy. Patients who were found operable after completion of neoadjuvant therapy underwent a mastectomy and adjuvant polychemotherapy. Ten of 36 patients required interruption in 5-FU treatment and nine patients suffered from in-field wet desquamation. Prior to neoadjuvant treatment, all patients were considered unresectable due to skin

Download English Version:

<https://daneshyari.com/en/article/3328719>

Download Persian Version:

<https://daneshyari.com/article/3328719>

[Daneshyari.com](https://daneshyari.com)