THE OHIO STATE UNIVERSITY COLLEGE OF MEDICINE

Targeting Breast Cancer in the Liver: Comparative Insights on Transarterial Chemoembolization and Radioembolization

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INTRODUCTION

- Breast cancer accounts for nearly 1 in 3 cancer diagnoses and is the second leading cause of cancer-related death in women in the United States.[1]
- About 3.5-7% of patients will already have distant metastasis upon initial presentation and 30-40% will have metastatic disease months to years after their initial early-stage diagnosis.[2]
- Common sites of breast cancer metastasis include bone, brain, lung, and liver.
- Locoregional therapies, like transarterial chemoembolization (TACE) and transarterial radioembolization (TARE), have well-established treatment effectiveness in hepatocellular carcinoma[3,4]

PURPOSE

This presentation aims to explore the data comparing the effectiveness of TACE versus TARE in the treatment of breast cancer liver metastasis (BCLM).

METHODS

A review of literature was conducted through PubMed, focusing on the treatment of BCLM with TACE and TARE. The search included systematic reviews, clinical trials, retrospective cohort studies, prospective cohort studies published through 2025.

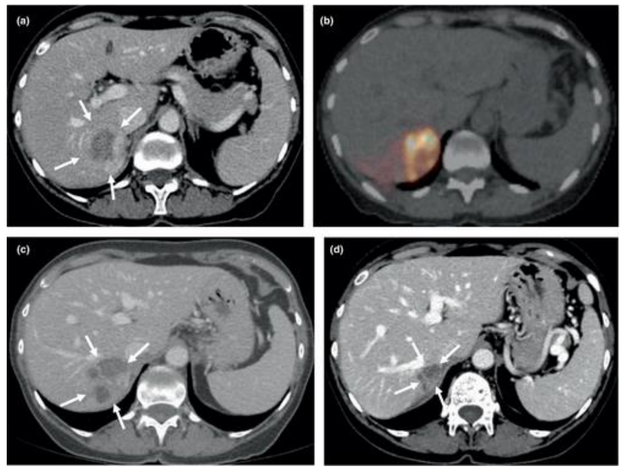

Figure 1, *figure and caption adapted from Orsi et al.*
(a) A 46-year-old lady with bone metastases from breast cancer, responding at systemic therapy, developed a single 5 cm fast-growing liver metastasis. The patient was selected to receive TARE due to tumor size and oligo-progressive nature of disease. (b) 24 hours after a super-selective TARE, PET highlights the well-defined and concentrated radioactivity at the tumour site. (c) 1 month after TARE, CT scan shows no change in tumor aside from some hypodense areas within the mass due to treatment. (d) One year later, CT scan showed the shrinkage of the liver metastasis.

RESULTS

- Disease control rates are shown to be greater in patients treated with TARE treatment
  - The overall disease control rates were higher and the median 3-month progressive disease rates were lower in patients treated with TARE (78.9%, 20.7%) as opposed to those treated with TACE (68.7%, 30.3%)[5]
  - Disease control rates in patients treated with TARE ranged from 78% to 96% at 2-4 months[2]
- Overall survival is shown to be greater in patients treated with TACE
  - Overall survival for the group treated with TACE was 15.3 months versus 11.9 months for the TARE-treated group[5]
  - Another study quoted a pooled median overall survival of 19.6 months for TACE patients versus 11.5 months for TARE patients[7]
- Patients treated with TACE experienced significantly more adverse events versus those treated with TARE ($p=0.02$)[8]

CONCLUSION

- Conflicting data exists comparing the effectiveness of TACE versus TARE in the treatment of BCLM and existing studies vastly vary in design, protocol, and patient selection.
- Collaborative, prospective, large-scale studies with standardized protocols are needed to elucidate what role these locoregional therapies play in BCLM treatment and in what patient populations they will be most effective

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