

# Relapsed unresectable breast cancer – tumor shrinkage by regional chemotherapy combined with reversible electroporation

Kornelia Aigner<sup>1</sup>, Emir Selak<sup>2</sup>, Sabine Gailhofer<sup>2</sup>, Karl Reinhard Aigner<sup>2</sup>

1 Department Tumor Biology, Medias Klinikum, Burghausen, Germany

2 Department Surgical Oncology, Medias Klinikum, Burghausen, Germany

## Background:

Relapsed unresectable triple negative breast cancer is a demanding disease with few treatment options. Especially for patients with huge tumor masses a treatment that offers rapid tumour shrinkage is needed. If several treatment lines had already been applied and patients are exhausted, systemic side effects have to be avoided. Reversible electroporation has shown to be effective for breast cancer if combined with systemic bleomycin and/or cisplatin. For enhancing the local effect and reducing the systemic side effects we combined reversible electroporation with regional chemotherapy.

## Material and Methods:

Patients with advanced metastasized and relapsed breast cancer received regional chemotherapy in terms of intra arterial infusion combined with percutaneous reversible electroporation. Circulating tumour cells (CTC) were counted before and 24 hours after the treatment. Tumour response was evaluated by CT control.

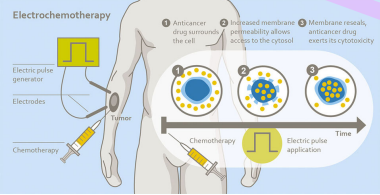
## Results:

21 treatments have been conducted for 14 patients with a mean tumor size of 7.6 cm (SD 3.3 cm). Higher local drug levels are present at arterial infusion compared to venous infusion and result in enhanced response rates. Circulating tumor cells decreased or stayed stable during 24 h after the treatment for 11 and 8 cases, respectively. An increase has been observed in two cases. 13 patients showed clinical response with tremendous tumour shrinkage that led to resectability. One patient did not respond to the treatment regimen.

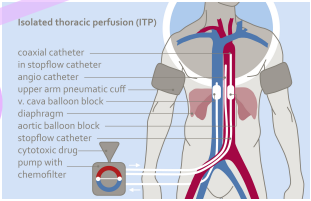
## Conclusions:

The combination of reversible electroporation with intra arterial chemotherapy is feasible and results in good clinical response with neglectable side effects. The treatment is repeatable and can lead to resectability.

## Electro-chemotherapy



## Arterial Infusion/ Isolated Perfusions



## Regional Electrochemotherapy

### patients

|                 |                    |
|-----------------|--------------------|
| n patient       | 14                 |
| n treatment     | 21                 |
| age (median)    | 52 y               |
| triple-negative | 10/14              |
| stage           | III-IV             |
| ulcerated       | 5/14               |
| tumor size      | median 8 cm (1-14) |
| distant mets    | 6                  |



### treatments combined with electroporation

|                             |    |
|-----------------------------|----|
| arterial infusion           | 15 |
| Isolated Thoracic Perfusion | 6  |

