

Markers of Apoptosis in Metastatic Breast Cancer

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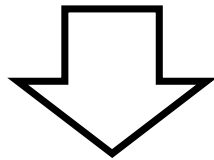
**Goiânia
2015**

INTRODUCTION

Breast Cancer - Epidemiology



World



***The principal
cause of death
in women***

**Brazil
(INCA)**

57.120 new cases for 2014

Rio Grande do Sul – second
state with more prevalence

2011- 13.345 death in
99,10% of women



(Instituto Nacional de Câncer. Estimativa 2014: Incidência de Câncer no Brasil. World Health Organization. International Agency for Research on Cancer; 2014.)

INTRODUCTION

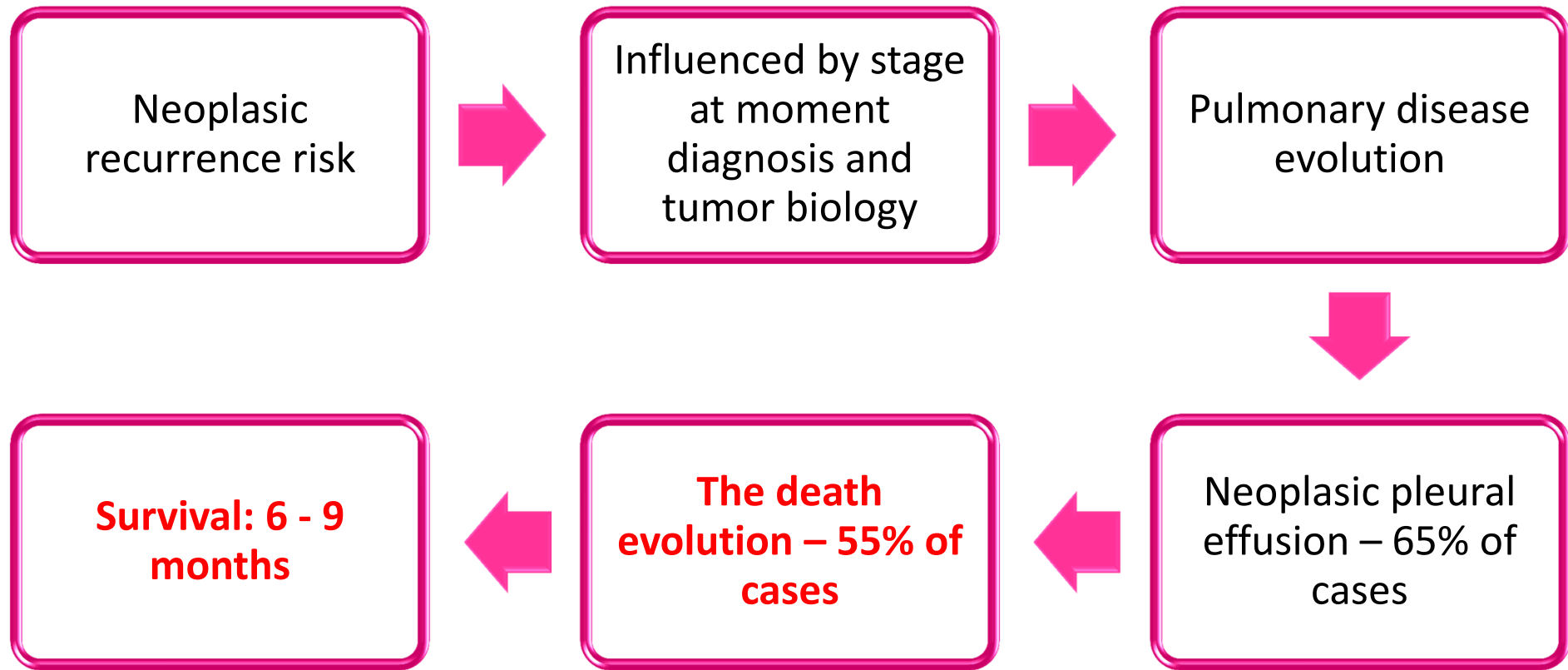
OBJECTIVE

METHODOLOGY

RESULTS

CONCLUSIONS

Metastatic Breast Cancer and Neoplastic Pleural Effusion



(Chia et al., 2008; Kennecke e cols., 2010; Yhim et al., 2010; Santos GT et al, 2012)

INTRODUCTION

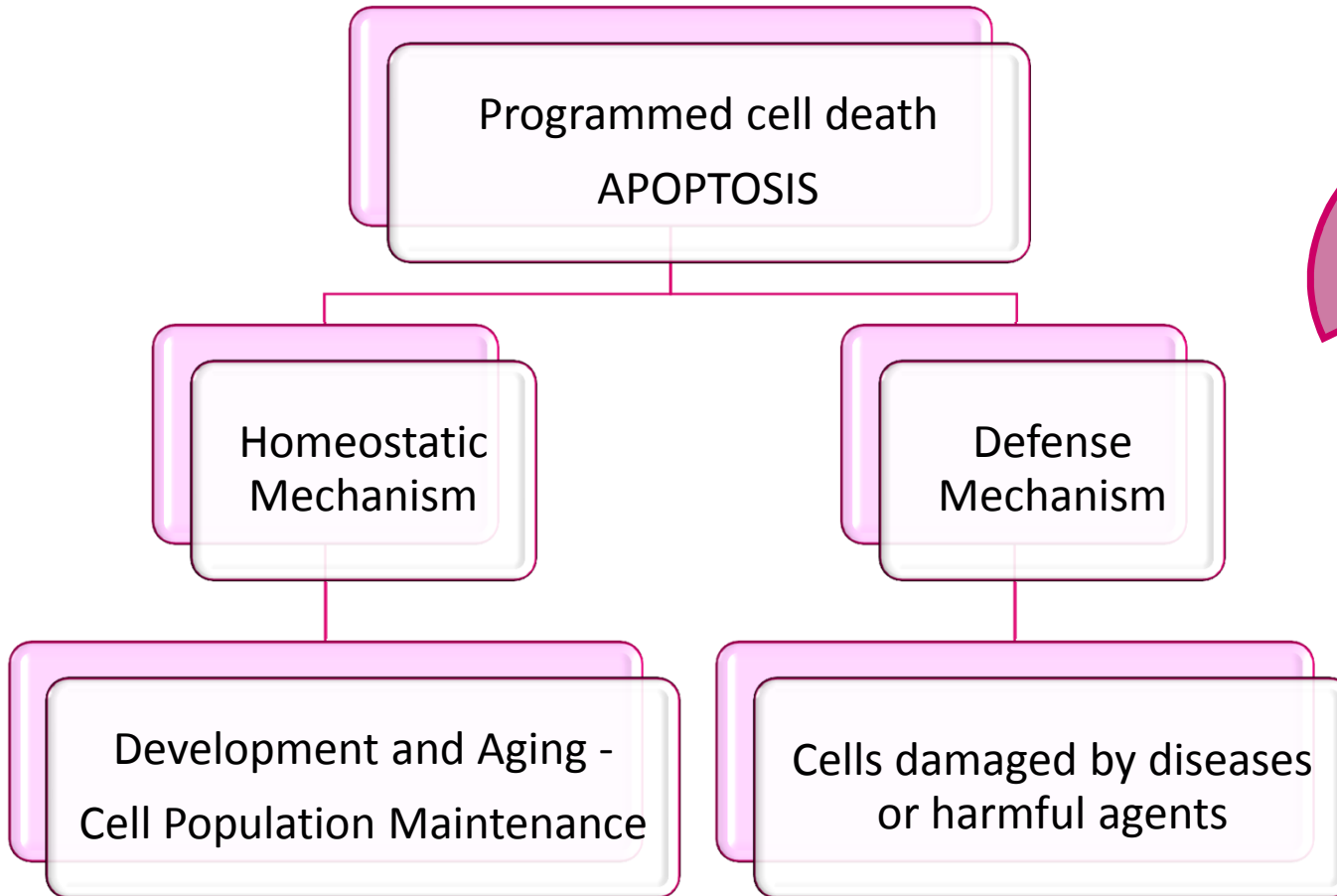
OBJECTIVE

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Apoptosis and cancer



(W, Umar et al; 2015. Williams, MM and Cook SR; 2015. Pavlidou, A et al; 2014. Jordan, VC; 2015)

INTRODUCTION

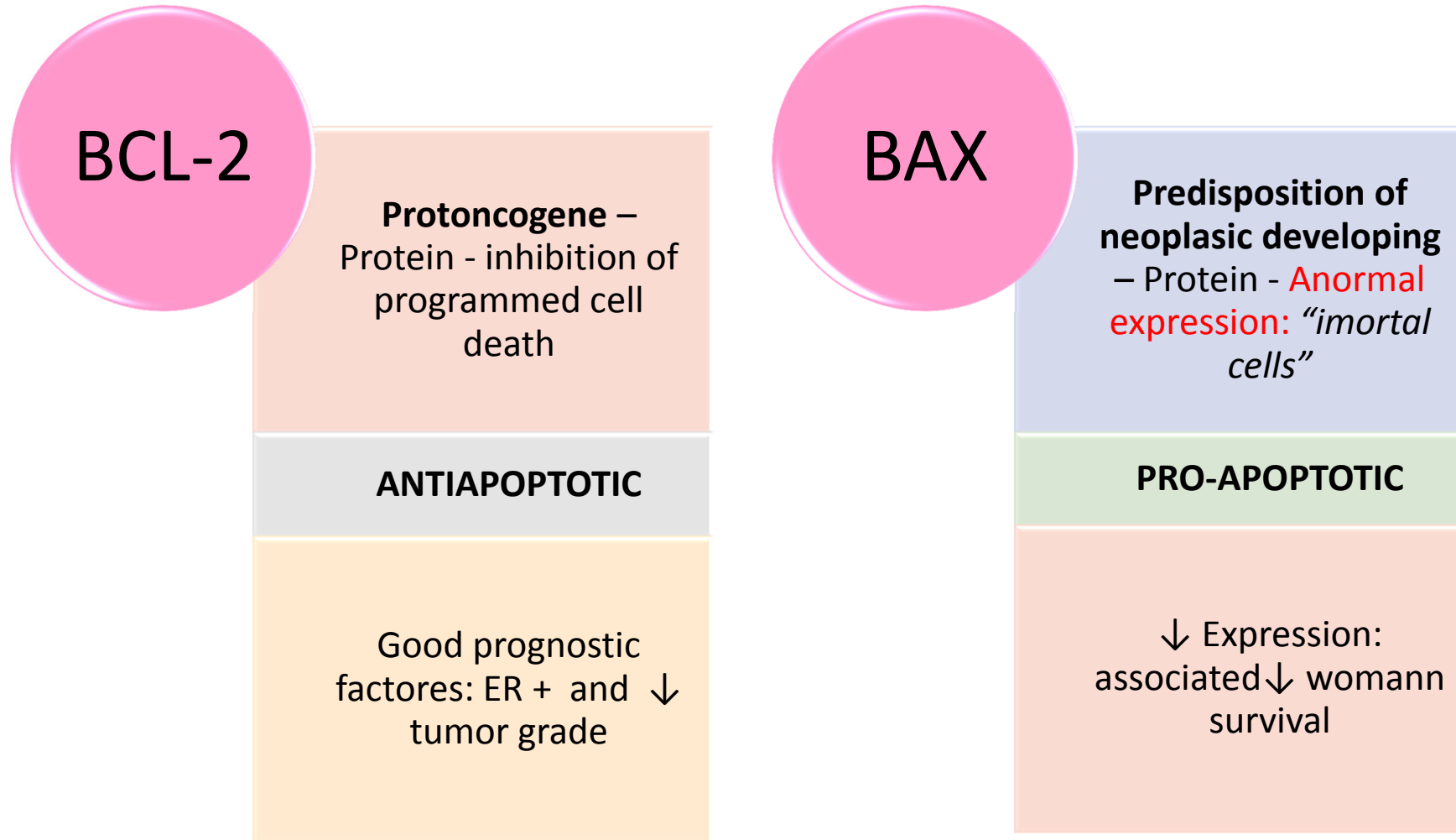
OBJECTIVE

METHODOLOGY

RESULTS

CONCLUSIONS

Markers of Apoptosis on Breast Cancer



(Hong Li, et al; 2011. Williams, MM and Cook SR; 2015. Méndez-Catalá CF et al; 2013. Płonka, J et al; 2015. Zhou, GZ et al; 2015; Yan X; et al; 2015).

INTRODUCTION

OBJECTIVE

METHODOLOGY

RESULTS

CONCLUSIONS

OBJECTIVE

Investigate the expression of apoptosis markers in metastatic breast cancer



OBJECTIVE

METHODOLOGY

RESULTS

CONCLUSIONS

METHODOLOGY

Delimitation

Transversal study with hospitalar base

Criteria
Inclusion

Female patients samples

Neoplastic pleural effusion (diagnostic from 2011 to 2013)

Breast cancer history

Following to 1 year (dec 2014)



METHODOLOGY

RESULTS

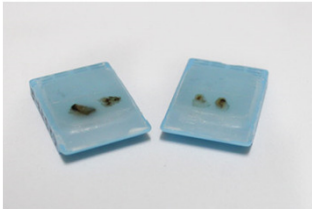
CONCLUSIONS

Total

25 paraffin samples of breast carcinomas



25 samples of cell block of malignant pleural effusion were evaluated



The same patients

The sections were subjected to immunohistochemistry

Using antibodies markers of apoptosis - Bcl-2 and Bax

“Hot spots”

METHODOLOGY

RESULTS

CONCLUSIONS

RESULTS

Table 1. Age mean in breast cancer, neoplastic pleural effusion and death.

| Event | Age (years) |
|---------------|-------------|
| Breast cancer | 53 |
| NPE | 56 |
| Death | 57 |

Table 2. Pathology and clinic informations of cases.

| Clinical Pathologic Findings | | N 25 |
|--------------------------------------|--------------------------------|----------|
| <i>Breast cancer type histologic</i> | Infiltrating ductal carcinoma | 21 (84%) |
| | Infiltrating Lobular Carcinoma | 4 (16%) |
| <i>Breast cancer staging</i> | Stage I | 4 (16%) |
| | Stage II | 12 (48%) |
| | Stage III | 9 (36%) |
| | Stage IV | 0 (0%) |

RESULTS

CONCLUSIONS

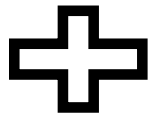
| | | |
|--|-----------------------|----------|
| <i>Breast cancer immunohistochemical profile</i> | Estrogen receptor | |
| | <i>Positive</i> | 18 (72%) |
| | <i>Negative</i> | 7 (28%) |
| | Progesterone receptor | |
| | <i>Positive</i> | 17 (68%) |
| | <i>Negative</i> | 8 (32%) |
| | HER-2 expression | |
| | <i>Positive</i> | 8 (32%) |
| | <i>Negative</i> | 17 (68%) |
| | Ki-67 expression | |
| <i>Positive</i> | 21 (84%) | |
| <i>Negative</i> | 4 (16%) | |
| P53 expression | | |
| <i>Positive</i> | 6 (24%) | |
| <i>Negative</i> | 19 (76%) | |
| <i>Breast cancer molecular subtype</i> | Luminal A | 5 (20%) |
| | Luminal B | 15 (60%) |
| | HER-2 overexpression | 1 (4%) |
| | Triplo negative | 4 (16%) |

RESULTS

CONCLUSIONS

Markers in tumor samples

100% (n = 25) of primary tumor samples



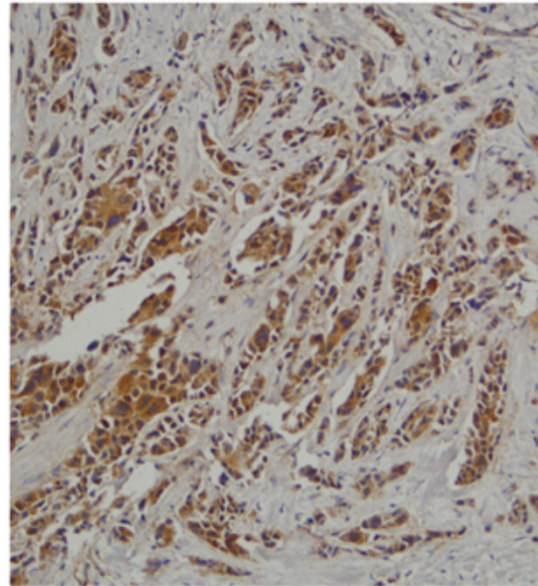
96% (n = 24) samples of malignant pleural effusion



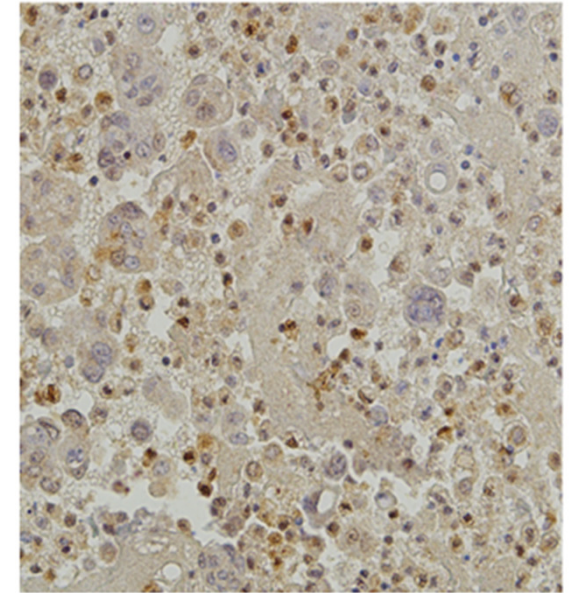
Positive for marker Bax

Fig 1 Hot spots from samples studied

Protein Expression BAX



Breast Cancer

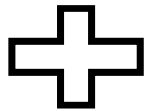


Neoplastic pleural effusion

RESULTS

CONCLUSIONS

97% (n = 22) of primary tumor samples



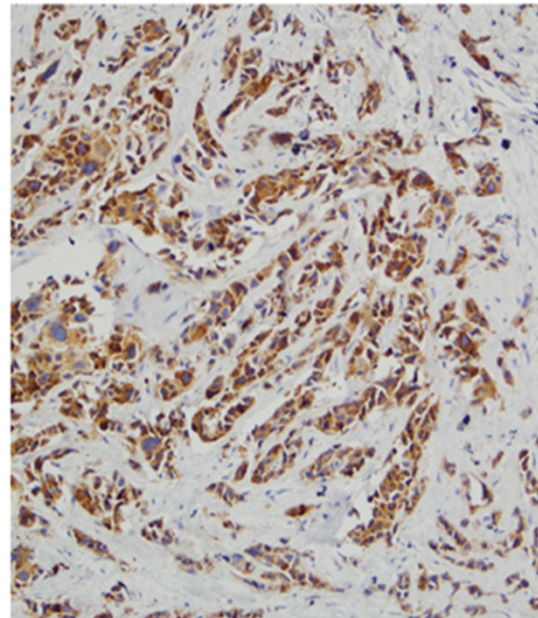
56% (n = 14) samples of malignant pleural effusion



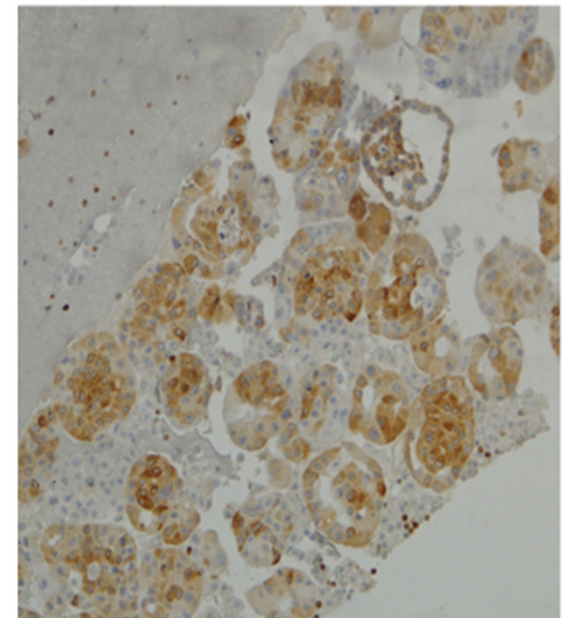
Positive for marker Bcl-2

Fig 2 Hot spots from samples studied

Protein Expression Bcl-2



Breast Cancer



Neoplastic pleural effusion

RESULTS

CONCLUSIONS

Significative
association

Increased Bcl-2
expression in
breast tumor

consequent decrease of
Bax expression in
malignant pleural
effusion

$(p = 0,045)$

Significantly

Bax protein
increased

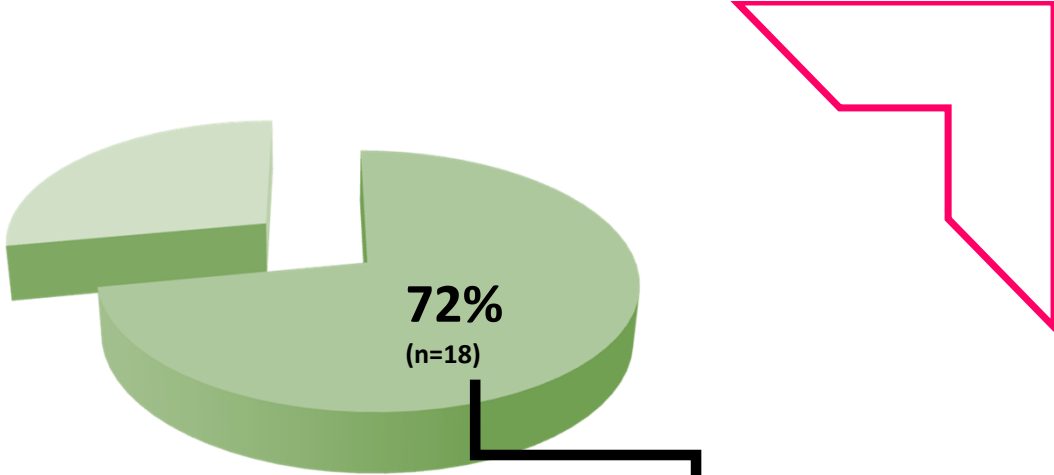
Has compared
to the initial
stage of tumor

$(p = 0,040)$

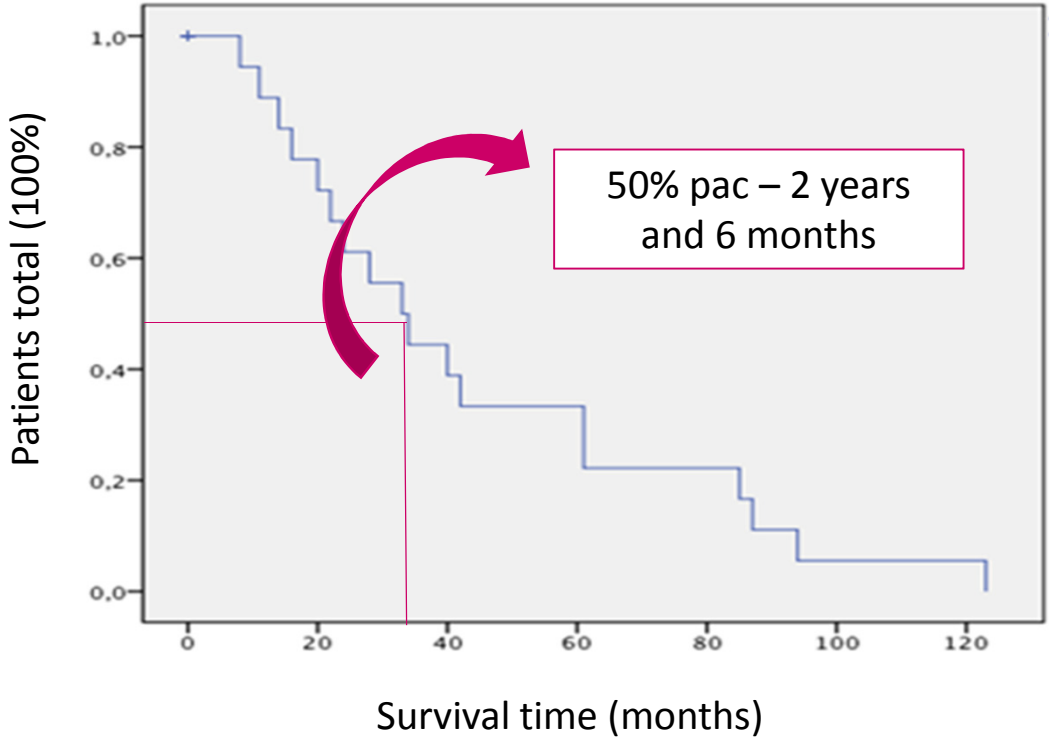
RESULTS

CONCLUSIONS

The outcome of death was observed in 72% (n = 18) case



Survival: survival curve between breast cancer and death



Breast cancer

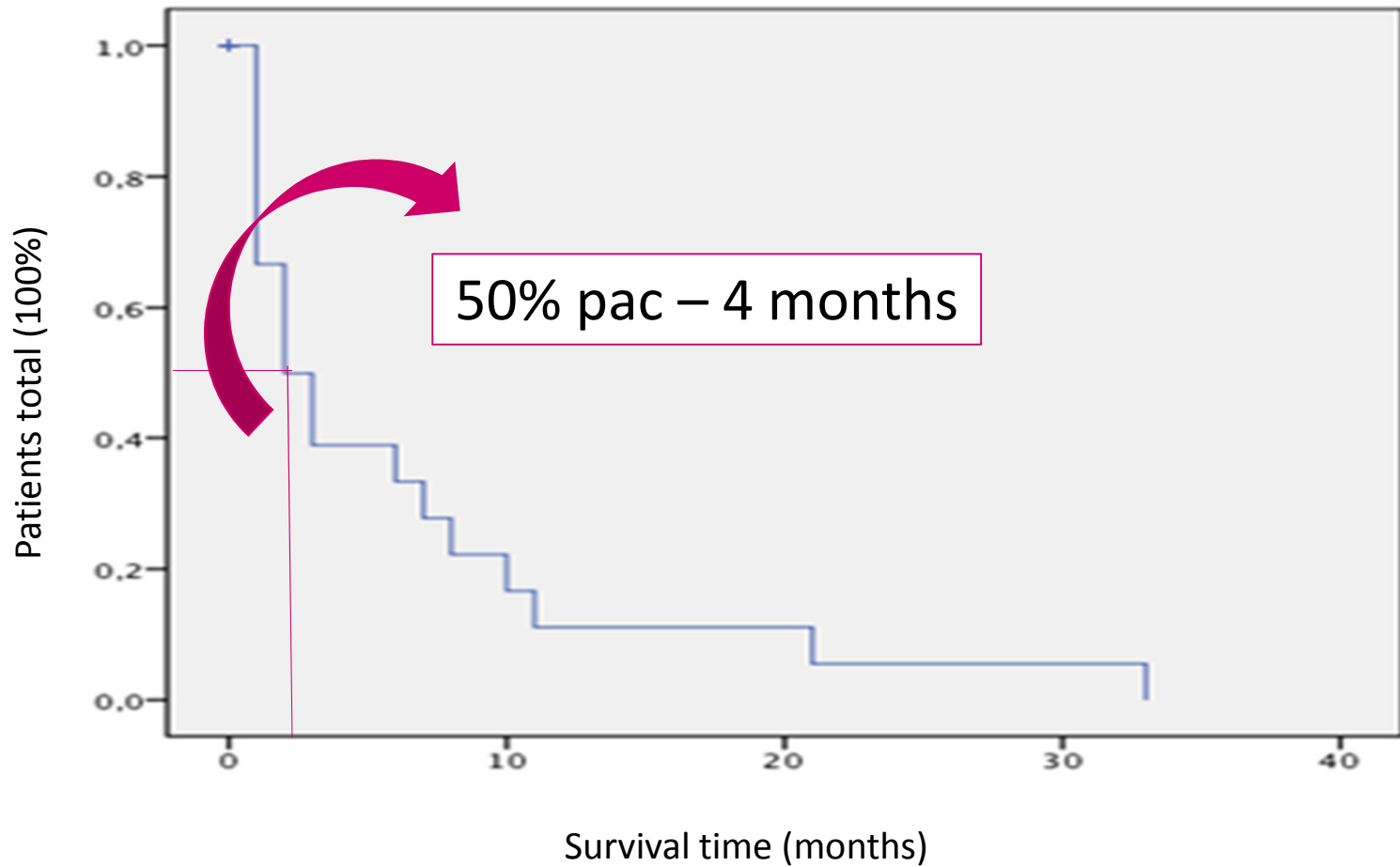
55,5% marker (weak 1+) → Bax (pro-apoptotic)

61,1% marker (strong 3+) → Bcl-2 (anti-apoptotic)

RESULTS

CONCLUSIONS

Survival: survival curve between neoplastic pleural effusion and death



RESULTS

CONCLUSIONS

Correlation
was found
between

The pro-apoptotic
protein expression
(BAX)

Decreased survival time
from diagnosis of pleural
effusion and death

$(p = 0,041)$

RESULTS

CONCLUSIONS

CONCLUSIONS

➤ It is observed that there is a relationship between increased anti-apoptotic marker expression in the primary tumor

And the consequent reduction of the pro-apoptotic marker in metastasis

Is associated with better outcomes and increased survival of patients with metastatic breast cancer.

➤ The marker of apoptotic promotion (Bax)

CONCLUSIONS

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Thanks!!!

Suggestions

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