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Introduction: Mink breast cancer (MBC) is a disease occurring at approximately 1% of all breast cancers. Due to the low incidence, tumor guidelines based on prognosis and treatment are not available. The aim of this study was to analyze the histological and immunohistochemical characteristics of the tumor and to compare the results with those of human breast cancer. **Methods:** A total of 100 mink breast cancer samples were analyzed. The results were compared with those of human breast cancer. The results were compared with those of human breast cancer. The results were compared with those of human breast cancer. **Results:** The results were compared with those of human breast cancer. The results were compared with those of human breast cancer. **Conclusion:** The results were compared with those of human breast cancer. The results were compared with those of human breast cancer.

- About 1% of all breast cancers occur in men
- Cca. 450 cases per year in Germany and 1700 per year in the US
- Current therapy strategies are derived from female breast cancer
- Possible gender specific differences between female [FBC] and male breast cancer [MBC] are not sufficiently evaluated

- Elucidate potential differences in tumor biological behavior between FBC and MBC
- Reveal possible differences in therapy of FBC and MBC
- Compare survival of female and male patients

- MBC diagnosed between 1995 and 2007 in region Chemnitz / Zwickau in the State of Saxony, Germany
- Region with 1.5 million inhabitants and 252 inhabitants per km²
- All MBC patients diagnosed 1995-2007 in the region (n=113)
- Data on tumor characteristics, treatment and follow-up (3 years) was collected by the Cancer Registers of Chemnitz and Zwickau
- Retrospective cohort study and matched pair analysis
- To each MBC patients one corresponding FBC patients was matched based on at least 5-7 tumor characteristics (age, TNM, grade, hormone receptor [HR] state, Her2 [HER2] state)
- Statistical analysis was performed with SPSS for Windows Version 14.0
- A value of $p \leq .05$ was considered statistically significant (Log-Rank test, χ^2 - test)
- Patient description is shown in Tab. 1
- Differences in therapy strategies of MBC and FBC are shown in Tab. 2

Tab. 1: Patient characteristics

Age [years]	67,3 (43-89)		
<u>Tumor stage</u>	n=109		
pTis		4	3,7%
pT1		38	34,9%
pT2		35	32,1%
pT3		5	4,6%
pT4		27	24,8%
<u>Nodal state</u>	n=106		
pN0		58	54,7%
pN+		48	45,3%
<u>Metastasis</u>	n=113		
cM0		103	91,2%
cM1		10	8,8%
<u>Grading</u>	n=103		
G1		7	6,8%
G2		66	64,1%
G3		30	29,1%
<u>Receptor state</u>			
HR +	n=91	78	85,7%
-ER +		72	79,1%
-PgR +		70	76,9%
HER2 +	n=78	7	9,0%
Triple negative	n=91	11	12,1%

Tab. 2: Therapy strategies

		Male	Female
<u>Surgery</u>		n=106	n=108
Mastectomy	p<0.001	94 88.7%	59 45.4%
Breast conserving surgery	p<0.001	12 11.3%	41 47.2%
No surgery	p<0.05	0 0.0%	8 7.4%
<u>Adj. Radiotherapy</u>		n=102	n=82
Radiotherapy	p<0.001	62 60.7%	72 87.8%
No therapy	p<0.001	40 39.3%	10 12.2%
<u>Adj. Systemic Therapy</u>		n=93	n=82
Chemotherapy	p=17	16 15.3%	21 25.6%
Chemo- / Hormone therapy	p=0.88	20 22.0%	27 32.9%
Hormone therapy	p=43	31 34.1%	32 39.1%
No therapy	p<0.001	26 28.6%	2 2.4%

- We found no significant differences in overall survival [OS] of MBC (68.1%) and FBC (70.4%)
- Median survival time was 98 months for MBC and 76 months for FBC (Fig. 1)

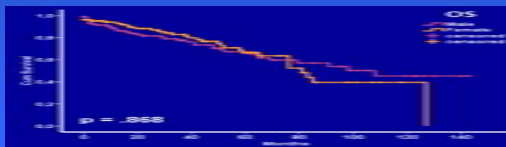


Fig. 1: Overall survival of MBC vs. FBC

- Advanced tumor stage ($p<.005$) (Fig. 2), nodal positivity ($p<.05$) (Fig. 3) and poor differentiation ($p<.05$) (Fig. 4) correlate significantly with shorter OS in men

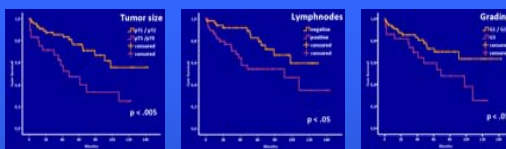


Fig. 2: Tumor size and OS **Fig. 3: Lymphnodes and OS** **Fig. 4: Grading and OS**

- Hormone receptor negative tumors have a significant ($p<.005$) negative impact on overall survival of MBC (Fig. 5)
- This also applies for ER ($p<.05$) and PgR ($p<.001$), as well as for triple negative tumors ($p<.05$) (Fig. 6)

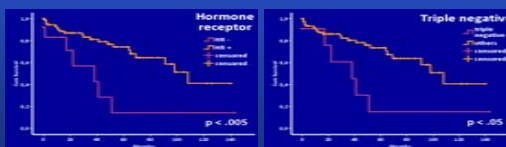


Fig. 5: Hormone receptor and survival **Fig. 6: Triple negatives and survival**

- Male patients who had received adjuvant radiotherapy had significant survival benefit ($p < .05$) (Fig. 7)

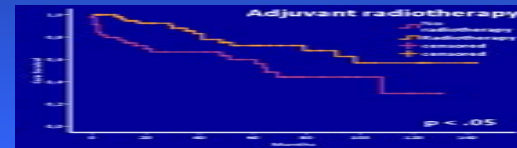


Fig. 7: Adjuvant radiotherapy and survival

- No differences in survival of MBC and FBC for most criteria
- However:
 - FBC with negative HR state showed a trend to better survival ($p=.055$) (Fig. 8),
 - Triple negative FBC had significantly ($p<.05$) better prognosis than MBC (Fig. 9)

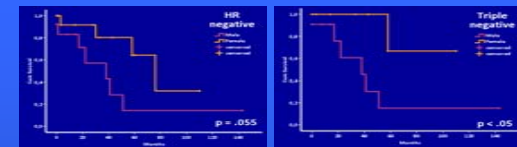


Fig. 8: Negative hormone receptor and survival

- Delayed diagnosis of MBC (T2-4: >60%; N+: 42.5%)
- However, relatively good prognosis (68% OS; 98 months median survival)
- Tumor size only independent prognostic factor (multivariate analysis)
- Adjuvant Radiotherapy showed survival benefit
- No significant differences regarding disease outcome between FBC and MBC when matched for tumor characteristics
- No survival benefit for women despite of more frequent adjuvant therapy of FBC
- Further characterization of subgroups of MBC necessary
- Therapy must be adapted to subgroups and according to guidelines for FBC