Breast Cancer
Follow-Up
Aktualisierung der Therapieempfehlungen nach Durchsicht der ASCO, NCCN und ACS Guidelines*, sowie der S3 Leitlinie
*Runowicz CD et al. , American Cancer Society/American Society of Clinical Oncology Breast Cancer Survivorship Care Guideline, JCO 34 :611-635,


8. Lee et al. Cancer Res Treat. 2015 Oct;47(4):765-73àReduced mortality according to regular follow up Impact on
Survival of Regular Postoperative Surveillance for Patients with Early Breast Cancer


10. NCCN Clinical Practice Guidelines in Oncology, Breast Cancer Version 3.17-10.17;

11. NCCN Clinical Practice Guidelines in Oncology, Breast Cancer Version 6.2020


Statement: risk factors of mortality after loco-regional recurrence

Breast Cancer Follow-Up Objectives

- Improve quality of life
- Improve physical performance
- Reduction and / or early detection of therapy-related side effects (such as osteoporosis, cardiac failure, fatigue, neurotoxicity, lymphedema, web axillary pain syndrome (abacterial lymphangitis), sexual disorders, cognitive impairment, sterility, and secondary tumors) and start of necessary therapies
- Participation in interventional programs during follow-up for breast cancer survivors in order to maximize therapy adherence, assess life-style interventions, and improve quality of life

<table>
<thead>
<tr>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2b</td>
<td>B</td>
<td>+</td>
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<tr>
<td></td>
<td>2a</td>
<td>B</td>
<td>+</td>
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<tr>
<td></td>
<td>2b</td>
<td>B</td>
<td>+</td>
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<tr>
<td></td>
<td>3b</td>
<td>B</td>
<td>+</td>
</tr>
</tbody>
</table>

Statement: Outcome measurements


Statement: Obesity, physical activity and quality of life

Statement: Obesity and breast cancer prognosis

Statement: Lymphedema

Statement: Neurotoxicity:

Statement: web axillary pain syndrome (Morbus Mondor):
Statement: sexual disorders and cognitive impairment:

Statement kognitive Einschränkungen

Statement: Secondary tumors:
Monitoring after Cardiotoxic Therapy (Anthracyclins, anti-HER2)

- After anthracyclines / Trastuzumab:
  - ECG and echocardiography:
    - 6, 12, 24 months and yearly up to 5 years after therapy.
    - After 5th year, every 5 years and if patient is symptomatic.
  - If cardiovascular risk factors:
    - blood pressure at least yearly
    - lipids and HbA1c in serum yearly
  - Modify risk factors if possible:
    - nicotine, body weight, bmi.
    - Education about individual risk profile and lifestyle
  - Risk factors:
    - radiotherapy of left breast, nicotine, hypertonus, diabetes mell., dyslipidaemia, adiposity, age > 60, cardiac diseases: reduced ejection fraction, post-myocardial infarction status, ≥ moderate heart defects

Evaluation of current adjuvant therapy

2. Lueck H-J, Hadji P, Harbeck N et al. 24 Months Follow-Up Results from PACT (Patient's Anastrozole Compliance to Therapy Programme), a Non-Interventional Study Evaluating the Influence of a Standardized Information Service on Compliance in Postmenopausal Women with Early Breast Cancer. SABCS 2011 [P5-17-05].

<table>
<thead>
<tr>
<th>Objective</th>
<th>Oxford LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation of current adjuvant therapy</td>
<td>2b</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>• incl. monitoring of adherence to endocrine therapies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Control of menopausal status, e.g. in case of CT-induced amenorrhea (FSH/2 or bleeding history) and addition of GnRH analogs (up to 2 years after CT) if premenopausal status in women &lt; 45 years old, or switch to aromatase inhibitors (if postmenopausal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pro-active improvement of therapy adherence</td>
<td>5</td>
<td>D</td>
<td>++</td>
</tr>
<tr>
<td>• Patient information about efficacy data for 5-10 years endocrine therapy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Early therapy of side effects (sports, NSAIDs, vitamin D / calcium)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adhärenz erhöhen durch Verhaltenstherapie/-training
Breast Cancer Follow-Up Objectives

- Psycho-social aspects of support and counseling
  - Pregnancy, contraception, sexuality, quality of life, menopausal symptoms, fear of recurrence
  - Inclusion of related persons (partner, family, friends, caregivers)
- Second opinion regarding primary therapy
- General counseling (e.g. changes in family history of breast, ovarian, prostate, pancreas carcinoma with new indication for genetic counseling, HRT, prophylactic surgery, breast reconstruction)

Oxford LoE GR AGO

1. Psycho-social aspects of support and counseling
2. Second opinion regarding primary therapy
3. General counseling (e.g. changes in family history of breast, ovarian, prostate, pancreas carcinoma with new indication for genetic counseling, HRT, prophylactic surgery, breast reconstruction)

Statement: Psycho-social aspects

10. BA Given, CW Given, PR Sherwood: Family and caregiver needs over the course of the cancer trajectory J Support Oncol 10:57–64, 2012 Crossref, Medline, Google Scholar

**Statement: prophylactic surgery**
1. Rhiem K, Engel C, Graeser M et al.. The risk of contralateral breast cancer in patients from BRCA½ negative high risk families as compared to patients from BRCA1 or BRCA2 positive families: a retrospective cohort study. Breast Cancer Res. 2012; 14(6): R156.

**Statement zur Analgesie**
Breast Cancer Follow-Up
Recommended Interventions

<table>
<thead>
<tr>
<th>Interventions regarding lifestyle risks and comorbidities in order to reduce an unfavorable impact on disease outcome</th>
<th>Oxford LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment of type II-diabetes (≥ 25% undetected DM in postmenopausal BC patients, endocrine therapy improves risk for DM)</td>
<td>2a</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>Weight/lifestyle intervention (If BMI &lt; 18.5 and &gt; 30)</td>
<td>2a</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Nightly fasting &gt; 13 h</td>
<td>2b</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Reduction of dietary intake (at least 15% calories from fat) in HR-negative BC is associated with improved overall survival</td>
<td>2b</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Stop smoking (smoking causes 2-fold increase in BC-specific and 4-fold increase in not directly BC-associated mortality)</td>
<td>2b</td>
<td>B</td>
<td>++</td>
</tr>
<tr>
<td>Alcohol consumption reduction (below 6g/d)</td>
<td>2b</td>
<td>B</td>
<td>+</td>
</tr>
<tr>
<td>Moderate sport (in patients with reduced physical activity prior to diagnosis) (at least 150 minutes/w, 2x/w)</td>
<td>1b</td>
<td>A</td>
<td>++</td>
</tr>
<tr>
<td>Distress reduction</td>
<td>3b</td>
<td>B</td>
<td>+</td>
</tr>
</tbody>
</table>


AHT erhöht Diabetes mellitus

Statement: for all statements see most recent literature see at Survivorship care guidelines of ASC and ASCO

Weight intervention.

Moderate sport intervention when physical activity was reduced

Das Essen von Nüssen erhöht OS und DFS

Bariatrische Operationen
Prolonged nightly fasting improves prognosis in breast cancer patients

retrospective cohort study:

2413 BC-pat. (no diabetes), nightly fasting more or less than 13 hrs

Fasting < 13 hrs:  HR 1.36, 36% increase of risk for recurrence
HR 1.21, n.s. increase of risk for mortality

every 2-hrs-prolonged fasting was correlated with a 20% increase of sleeping duration


Statement: Physical examination

Statement: Mammography

Statement: Sonography of the breast
Statement: MRI of the breast

Statement: Pelvic examination Expert Opinion
Statement: Dxa scan  Expert Opinion


**Statement: Magnetic resonance imaging (MRI) of the breast**


Statement: Routine biochemistry (incl. tumor markers)

Statement: Ultrasound of the liver
Statement: Bone scan
Statement: Chest X-ray
Statement: CT of chest, abdomen and pelvis

Statement: Detection of isolated/circulating tumor cells
Statement: PET / WB-MRI
### Background for Toxicity Management

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Laboratory Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tamoxifen:</strong></td>
<td>Cholesterol, Triglycerides, Bilirubin, ALAT, ASAT, gamma-GT, Glucose</td>
</tr>
<tr>
<td><strong>Aromatase inhibitors:</strong></td>
<td>Cholesterol, Triglycerides, Bilirubin, ALAT, ASAT, gamma-GT</td>
</tr>
<tr>
<td>** Anthracyclines:**</td>
<td>pro-BNP, possibly Troponin</td>
</tr>
<tr>
<td><strong>Trastuzumab:</strong></td>
<td>pro-BNP, possibly Troponin</td>
</tr>
<tr>
<td><strong>Checkpoint inhibitors:</strong></td>
<td>Bilirubin, ALAT, ASAT, gamma-GT, Creatinine, TSH, fT3/fT4, Myoglobin</td>
</tr>
</tbody>
</table>
## Early Detection of Potentially Curable Events

### Locoregional recurrence (chest wall, in-breast):

- Incidence 7–20% (depending on time of F/U)

<table>
<thead>
<tr>
<th>Method</th>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast self-examination</td>
<td>5</td>
<td>D</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Physical examination, mammography &amp; US</td>
<td>1a</td>
<td>A</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>Magnetic resonance imaging (MRI)*</td>
<td>3a</td>
<td>B</td>
<td>+/-</td>
<td></td>
</tr>
</tbody>
</table>

* Consider in case of increased risk (age < 50 y, HR neg., diagnostic assessability C/D in mammography + ultrasound)

### Statement incidence


### Statement breast self examination


### Statement physical examination, mammography & US & MRI
## Early Detection of Potentially Curable Events

**Contralateral breast cancer:**
- Relative risk: 2.5–5
- Incidence: 0.5–1.0 %/year

<table>
<thead>
<tr>
<th>Procedure</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast self-examination</td>
<td>5</td>
<td>D</td>
<td>+</td>
</tr>
<tr>
<td>Physical examination, mammography &amp; US</td>
<td>1a</td>
<td>A</td>
<td>++</td>
</tr>
<tr>
<td>Routine breast MRI*</td>
<td>3b</td>
<td>B</td>
<td>+/-</td>
</tr>
</tbody>
</table>

**Male breast cancer: analogous to BC in women**
- Relative risk: 2.5–5
- Incidence: 0.5–1.0 %/year

<table>
<thead>
<tr>
<th>Procedure</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider in case of increased risk: age &lt; 50 y, HR-neg., diagnostic assessability C/D in mammography + ultrasound.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>See chapter “Breast Cancer Specific Situations”</strong></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Statement risk and incidence

### Statement breast self examination

Statement physical examination, mammography & US&MRI


Statement surveillance of male breast cancer

Statement: Risk


Statement: Screening for secondary malignancies according to current guidelines

Statement: Pelvic examination and PAP smear

Statement: Endometrial ultrasound / biopsy
Statement: Marrow neoplasms after adjuvant breast cancer therapy.

Statement: Secondary lung tumors:
## Follow-Up Care for invasive / non-invasive Breast Cancer

### Recommendations for asymptomatic pts.
(mod. according to ASCO-ACS recommendations 2016, NCCN 2019, ESMO 2019 and S3-guidelines 2017)

<table>
<thead>
<tr>
<th>Clinical follow-up</th>
<th>Follow-up*</th>
<th>Screening/ Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years after primary therapy</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>History, physical examination, counseling</td>
<td>every 3 months</td>
<td>every 6 months</td>
</tr>
<tr>
<td>Self-examination</td>
<td>monthly</td>
<td></td>
</tr>
<tr>
<td>Imaging modalities and biochemistry</td>
<td>indicated only if complaints, clinical findings, or suspicion of recurrence Monitoring of side effects of therapy</td>
<td></td>
</tr>
<tr>
<td>Mammo-graphy and additional sonography</td>
<td>BCT**</td>
<td>both sides: every 12 months</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>contralateral every 12 months</td>
<td></td>
</tr>
<tr>
<td>Echocardiography</td>
<td>6,12,24 months and yearly up to 5 years after completion of cardiotoxic therapy, after 5th year, every 5 years and if patient is symptomatic.</td>
<td></td>
</tr>
</tbody>
</table>

* Continued follow-up visits if still on adjuvant treatment  
** In pts after breast-conserving therapy (BCT): First mammography 1 year after initial mammography or at least 6 months after completion of radiotherapy

4. NCCN Clinical Practice Guidelines in Oncology, Breast Cancer Version 02.2022  


**Breast Cancer Follow-up**

**Duration and Breast Nurses**

<table>
<thead>
<tr>
<th>Duration of follow-up</th>
<th>Oxford LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 5 years</td>
<td>1c A</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>up to 10 years</td>
<td>1c A</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Surveillance by specialized breast nurses</td>
<td>2b B</td>
<td>+/-*</td>
<td></td>
</tr>
</tbody>
</table>

* Studies recommended

Luminal-like, HER2-positive and Triple-negative Breast Cancer Patients

- Intrinsic typing of breast cancer leads to subgroups with different course of disease. Thus, postoperative surveillance should be adapted to specific time-dependent hazards of recurrence.
- ER-positive patients have stable risk over many years requiring long term surveillance.
- However, patients with HER2-positive disease and TNBC have more risk in the early phase of follow-up and should therefore receive more intense surveillance in the first years of follow-up.