

Diagnosis and Treatment of Patients with early and advanced Breast Cancer

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Breast Cancer Follow-Up

Breast Cancer Follow-Up

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- **Versions 2002-2024:**

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- **Version 2025:**

Mundhenke / Schmidt

Breast Cancer Follow-Up Objectives

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	Oxford		
	LoE	GR	AGO
Early detection of curable events			
▪ In-breast recurrence	1a	B	++
▪ Loco-regional recurrence*	1a	B	++
Early detection of contralateral cancers	1a	B	++
Early detection of metastasis			
▪ Early detection of symptomatic metastases	3b	C	+
▪ Early detection of asymptomatic metastases	1a	A	-

* loco-regional recurrence is associated with a higher risk of mortality in node-positive, PR-negative, younger patients and in patients with a short time between primary diagnosis and recurrence

Breast Cancer Follow-Up Objectives

Oxford

	LoE	GR	AGO
<ul style="list-style-type: none"> ■ Improve quality of life 	2b	B	+
<ul style="list-style-type: none"> ■ Improve physical performance 	2a	B	+
<ul style="list-style-type: none"> ■ Reduction and / or early detection of therapy-related side effects (such as osteoporosis, cardiac failure, fatigue, endocrinopathy, neurotoxicity, lymphedema, web axillary pain syndrome (abacterial lymphangitis), sexual disorders, cognitive impairment, sterility, and secondary tumors) and start of necessary therapies 	2b	B	+
<ul style="list-style-type: none"> ■ 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 	3b	B	+

Monitoring after Cardiotoxic Therapy (e.g. Anthracyclines, anti-HER2, Immuno-oncology)

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

Breast Cancer Follow-Up Objectives

Oxford

LoE GR AGO

2b B ++

- **Evaluation of current adjuvant therapy**

- incl. monitoring of adherence to endocrine therapies
- 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 < 45 years old, or switch to aromatase inhibitors (if postmenopausal)

- **Pro-active improvement of therapy adherence**

- Patient information about efficacy data for 5-10 years endocrine therapy
- Early therapy of side effects (sports, NSAIDs, vitamin D / calcium)

5 D ++

Breast Cancer Follow-Up Objectives

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	LoE	GR	AGO
<ul style="list-style-type: none"> ■ Psycho-social aspects of support and counseling <ul style="list-style-type: none"> ■ Pregnancy, contraception, sexuality, quality of life, menopausal symptoms, fear of recurrence ■ Inclusion of related persons (partner, family, friends, caregivers) 	4	C	+
<ul style="list-style-type: none"> ■ Second opinion regarding primary therapy 	2c	B	++
<ul style="list-style-type: none"> ■ 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) 	2c	C	+

Breast Cancer Follow-Up

Recommended Interventions

Interventions regarding lifestyle risks and comorbidity in order to reduce an unfavorable impact on disease outcome

	Oxford		
	LoE	GR	AGO
<ul style="list-style-type: none"> Treatment of type II-diabetes (> 25% undetected DM in postmenopausal BC patients, endocrine therapy improves risk for DM) 	2a	B	++
<ul style="list-style-type: none"> Weight/lifestyle intervention (if BMI < 18.5 and > 30) 	2a	B	+
<ul style="list-style-type: none"> Nightly fastening > 13 h 	2b	B	+
<ul style="list-style-type: none"> Reduction of dietary intake (at least 15 % calories from fat) in HR-negative BC is associated with improved overall survival 	2b	B	+
<ul style="list-style-type: none"> Stop smoking (smoking causes 2-fold increase in BC-specific and 4-fold increase in not directly BC-associated mortality) 	2b	B	++
<ul style="list-style-type: none"> Alcohol consumption reduction (below 6g/d) 	2b	B	+
<ul style="list-style-type: none"> Moderate sport (in patients with reduced physical activity prior to diagnosis) (at least 150 minutes/w, 2x/w) 	1b	A	++
<ul style="list-style-type: none"> Distress reduction 	3b	B	+

Routine Follow-Up Examinations in Asymptomatic Patients

Oxford

Tests:

- **History (specific symptoms)**
- **Physical examination**
- **Breast self-examination**
- **Mammography**
- **Sonography of the breast**
- **Routine MRI of the breast***
- **Breast MRI if conventional imaging is inconclusive**
- **Pelvic examination**
- **DXA-scan at baseline and repeat scan according to individual risk in women with premature menopause or women taking an AI**

LoE	GR	AGO
1a	A	++
1a	B	++
5	D	+
1a	A	++
2a	B	++
3a	B	+/-
3b	B	+
5	D	++
5	D	+

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

Routine Follow-Up Examinations in Asymptomatic Patients

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- Routine biochemistry (incl. tumor markers)
- Blood tests for monitoring of acute and late toxicities
- Ultrasound of the liver / Bone scan / Chest X-ray
- CT of chest, abdomen, and pelvis
- Detection of isolated / circulating tumor cells*
- ctDNA*
- PET / Whole body MRI

	Oxford		
	LoE	GR	AGO
	1a	A	-
	5	D	+
	1a	A	-
	2a	D	-
	2a	D	-
	2a	D	-
	2b	B	-

* Study participation recommended

Background for Toxicity Management

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Tamoxifen:	Cholesterol, Triglycerides, Bilirubin, ALAT, ASAT, gamma-GT, Glucose
Aromatase inhibitors:	Cholesterol, Triglycerides, Bilirubin, ALAT, ASAT, gamma-GT
Anthracyclines:	pro-BNP, possibly Troponin
Trastuzumab:	pro-BNP, possibly Troponin
Checkpoint inhibitors:	Bilirubin, ALAT, ASAT, gamma-GT, Creatinine, TSH, fT3/T4, Myoglobin

Early Detection of Potentially Curable Events

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Locoregional recurrence (chest wall, in-breast):

- Incidence 7-20% (depending on time of F/U)
- Breast self-examination
- Physical examination, mammography & US
- Magnetic resonance imaging (MRI)*

	Oxford		
	LoE	GR	AGO
Breast self-examination	5	D	+
Physical examination, mammography & US	1a	A	++
Magnetic resonance imaging (MRI)*	3a	B	+/-

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

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	LoE	GR	AGO
Contralateral breast cancer:			
▪ Relative risk: 2.5-5			
▪ Incidence: 0.5-1.0 %/year			
▪ Breast self-examination	5	D	+
▪ Physical examination, mammography & US	1a	A	++
▪ Routine breast MRI*	3b	B	+/-
▪ Male breast cancer: analogous to BC in women**	5	D	+

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

** See chapter "Breast Cancer Specific Situations"

Early Detection of Potentially Curable Events

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	LoE	GR	AGO
Unrelated site carcinoma:			
▪ MDS (RR 10.9), AML (RR 2.6-5.3), Colon RR 3.0; endometrium RR 1.6; ovary RR 1.5; lymphoma RR 7			
▪ Screening for secondary malignancies according to current guidelines	5	D	++
▪ Pelvic examination and PAP smear	5	D	++
▪ Routine endometrial ultrasound / biopsy	1b	B	-

Follow-Up Care for invasive / non-invasive Breast Cancer

Recommendations for asymptomatic pts.

(mod. according to ASCO-ACS recommendations 2016, NCCN 2021, ESMO 2019 and S3-guidelines 2017)

Clinical follow-up		Follow-up*				Screening/ Follow-up	
Years after primary therapy		1	2	3	4	5	> 5
History, physical examination, counseling		every 3 months DCIS every 6 months			every 6 months		inv.: every 12 months
Self-examination		monthly					
Imaging modalities and biochemistry		indicated only if complaints, clinical findings, or suspicion of recurrence Monitoring of side effects of therapy					
Mammo-graphy and additional sonography	BCT**	both sides: every 12 months					
	Mastectomy	contralateral every 12 months					
Echocardiography		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.					

* 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.

Breast Cancer Follow-up

Duration and Breast Nurses

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■ Duration of follow-up

- up to 5 years
- up to 10 years

■ Surveillance by specialized breast nurses

Oxford		
LoE	GR	AGO
1c	A	++
1c	A	+
2b	B	+/-*

* Study participation recommended