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Version 2021.1E

Breast Cancer Follow-Up

Breast Cancer
Follow-Up

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- **Versions 2002–2020:**

  Bauerfeind / Bischoff / Blohmer / Böhme / Costa / Diel / Friedrich / Gerber / Hanf / Heinrich / Huober / Janni / Kaufmann / Kolberg-Liedtke /Kümmel / Lux / Maass / Möbus / Müller-Schimpfle/ Mundhenke / Oberhoff / Rody / Scharl / Solbach/ Solomayer / Thomssen / Wöckel

- **Version 2021:**

  Gluz / Lüftner

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
▪ Improve quality of life	2b	B	+
▪ Improve physical performance	2a	B	+
▪ Reduction and/or early detection of therapy-related side effects (such as osteoporosis, cardiac failure, fatigue, neurotoxicity, lymphedema, sexual disorders, cognitive impairment, sterility, and secondary tumors) and start of necessary therapies	2b	B	+
▪ 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 (anthracyclines, anti-HER2)

- **Echocardiography 6-12 months and 5 years after treatment (in particular in case of highly dosed anthracycline-containing therapy or risk factors like left sided radiotherapy, smoking, AHT, DM, dyslipidemia, adipositas, age>60 years, status after MI or other cardiac diseases, moderate-graded vitium)**
- **BNP measurement in selected cases**

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Breast Cancer Follow-Up Objectives

	Oxford		
	LoE	GR	AGO
▪ **Evaluation of current adjuvant therapy**	2b	B	++
▪ **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 analoga (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**	5	D	++
▪ **Patient information about efficacy data for 5-10 years endocrine therapy**			
▪ **Early therapy of side effects (sports, NSAIDs, vitamin D / calcium)**			

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Breast Cancer Follow-Up Objectives

	Oxford		
	LoE	GR	AGO
▪ **Psycho-social aspects of support and counseling**	4	C	+
▪ Pregnancy, contraception, sexuality, quality of life, menopausal symptoms, fear of recurrence ▪ Inclusion of related persons (partner, family, friends, caregivers)			
▪ **Second opinion regarding primary therapy**	2c	B	++
▪ **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	+

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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
▪ **Treatment of type II-diabetes** (> 25% undetected DM in postmenopausal BC patients)	2a	B	++
▪ **Weight/lifestyle intervention** (if BMI < 18.5 and -> 30)	2a	B	+
▪ **Over night fasting > 13h**	2b	B	+
▪ **Reduction of dietary intake (at least 15 % calories from fat) in HR-negative BC is associated with improved overall survival**	2b	B	+
▪ **Stop smoking** (smoking causes 2-fold increase in BC-specific and 4-fold increase in not directly BC-associated mortality)	2b	B	++
▪ **Alcohol consumption reduction (below 6g/d)**	2b	B	+
▪ **Moderate sport (in patients with reduced physical activity prior to diagnosis) (at least 150 minutes/w, 2x/w)**	1b	A	++
▪ **Distress reduction**	3b	B	+

Nightly fasting

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

Marinac CR, Nelson SH, Breen CI et al. JAMA Oncol 2016: 2:1049-1055

Routine Follow-Up Examinations in Asymptomatic Patients

Tests:	Oxford LoE	GR	AGO
▪ History (specific symptoms)	1a	A	++
▪ Physical examination	1a	B	++
▪ Breast self-examination	5	D	+
▪ Mammography	1a	A	++
▪ Sonography of the breast	2a	B	++
▪ Routine MRI of the breast*	3a	B	+/-
▪ Breast MRI if conventional imaging is inconclusive	3b	B	+
▪ Pelvic examination	5	D	++
▪ DXA-scan at baseline and repeat scan according to individual risk in women with premature menopause or women taking an AI	5	D	+

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

Routine Follow-Up Examinations in Asymptomatic Patients

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	Oxford		
	LoE	GR	AGO
▪ Routine biochemistry (incl. tumor markers)	1a	A	-
▪ Blood tests for monitoring of acute and late toxicities	5	D	+
▪ Ultrasound of the liver	1a	A	-
▪ Bone scan	1a	A	-
▪ Chest X-ray	1a	A	-
▪ CT of chest, abdomen, and pelvis	2a	D	-
▪ Detection of isolated / circulating tumor cells	2a	D	-
▪ PET	2b	B	-
▪ Whole body MRI	2b	B	-

Background for toxicity management

Tamoxifen:	Cholesterin, Triglyceride, Bilirubin, ALAT, ASAT, gamma-GT
Aromatase-Inhibitors:	Cholesterin, Triglyceride, Bilirubin, ALAT, ASAT, gamma-GT
Anthracyclines:	pro-BNP, possibly Troponin
Trastuzumab:	pro-BNP, possibly Troponin
Checkpoint-Inhibitors:	Bilirubin, ALAT, ASAT, gamma-GT, Kreatinin, TSH, fT3/T4, Myoglobin

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Early Detection of Potentially Curable Events

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	Oxford LoE	GR	AGO
Locoregional recurrence (chest wall, in-breast):			
▪ Incidence 7–20% (depending on time of F/U)			
▪ **Breast self-examination**	5	D	+
▪ **Physical examination, mammography & US**	1a	A	++
▪ **Magnetic resonance imaging (MRI)***	3a	B	+/-

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

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Early Detection of Potentially Curable Events

	Oxford LoE	Oxford GR	Oxford 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 <50y, HR-neg., diagnostic assessability C/D in mammography + ultrasound.

** See chapter “Breast Cancer Specific Situations”

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Early Detection of Potentially Curable Events

	Oxford		
	LoE	GR	AGO
Carcinomas in unrelated sites:			
▪ MDS (RR 10.9), AML (RR 2.6–5.3), Colon RR 3.0; endometrium RR 1.6; ovary RR 1.5; lymphoma RR			
▪ 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

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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 months and 5 years after completion of cardiotoxic therapy**		

* 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

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Breast Cancer Follow-up
Duration and Breast Nurses

	Oxford LoE	Oxford GR	AGO
Duration of follow-up			
up to 5 years	1c	A	++
up to 10 years	1c	A	+
Surveillance by specialized breast nurses	2b	B	+/-*

* **Studies recommended**

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

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- **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.**

Ribelles et al. BCR 2013