



© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.

Guidelines Breast
Version 2021.1D

www.ago-online.de

FORSCHEN
LEHREN
HEILEN

Diagnostik und Therapie früher und fortgeschrittener Mammakarzinome

Duktales Carcinoma in situ (DCIS)



© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.
Guidelines Breast
Version 2021.1D

www.ago-online.de

FORSCHEN
LEHREN
HEILEN

Duktales Carcinoma in situ (DCIS)

- **Versionen 2002–2020:**
**Audretsch / Bauerfeind / Blohmer / Brunnert / Budach / Costa / Fersis /
Friedrich / Gerber / Hanf / Junkermann / Kühn / Lux / Maass / Möbus /
Mundhenke / Nitz / Oberhoff / Scharl / Schütz / Solomayer / Souchon /
Thill / Thomssen / Wenz**
- **Version 2021:**
Budach / Lux / Solbach

Prätherapeutische Abklärung suspekter Läsionen (BIRADS 4-5)

	Oxford		
	LoE	GR	AGO
▪ Mammographie	1b	B	++
▪ Vergrößerungsaufnahmen von Mikroverkalkungen	4	C	++
▪ Steigerung der Detektionsrate von G1/G2 DCIS durch digitale Mammographie (versus konventionell)	2b	B	+
▪ Stereotaktische Stanzbiopsie / Vakuumbiopsie (VAB)	2b	B	++
▪ Präparateradiographie	2b	B	++
▪ Setzen eines Markierungsclips in der Biopsieregion, wenn die Läsion komplett entfernt wurde	5	D	++
▪ MRT zur Festlegung der Ausdehnung und OP-Planung	1b	B	+/-
▪ Klinische Untersuchung	5	D	++
▪ Feinnadelpunktion / duktale Lavage	5	D	-
▪ Interdisziplinäre Tumorboard-Präsentation	5	D	++

Mammographie

1. Li J, Zhang H, Jiang H, Guo X et al. Diagnostic Performance of Digital Breast Tomosynthesis for Breast Suspicious Calcifications From Various Populations: A Comparison With Full-field Digital Mammography. *Comput Struct Biotechnol J*. 2018 Dec 20;17:82-89.
2. Adachi M, Fujioka T, Mori M et al. Detection and Diagnosis of Breast Cancer Using Artificial Intelligence Based Assessment of Maximum Intensity Projection Dynamic Contrast-Enhanced Magnetic Resonance Images. *Diagnostics (Basel)* 2020 May; 10(5): 330. Published online 2020 May 20. doi: 10.3390/diagnostics10050330
3. Sanmugasiva VV, Hamid MTR, Fadzli F, et al. Diagnostic accuracy of digital breast tomosynthesis in combination with 2D mammography for the characterisation of mammographic abnormalities. *Sci Rep*. 2020; 10: 20628. Published online 2020 Nov 26. doi: 10.1038/s41598-020-77456-6
4. Schaffter T, Buist DSM, Lee CI, et al. Evaluation of Combined Artificial Intelligence and Radiologist Assessment to Interpret Screening Mammograms. *JAMA Netw Open*. 2020 Mar; 3(3): e200265. Published online 2020 Mar 2. doi: 10.1001/jamanetworkopen.2020.0265


Präoperatives MRT

1. Vapiwala N, Hwang WT, Kushner CJ, et al. No impact of breast magnetic resonance imaging on 15-year outcomes in patients with

- ductal carcinoma in situ or early-stage invasive breast cancer managed with breast conservation therapy. *Cancer*. 2017;123(8):1324-1332.
2. Ryan R, Tawfik O, Jensen RA et al. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. *Prog Mol Biol Transl Sci*. 2017;151:33-80.
 3. Preibsch H, Beckmann J, Pawlowski J et al. Accuracy of Breast Magnetic Resonance Imaging Compared to Mammography in the Preoperative Detection and Measurement of Pure Ductal Carcinoma In Situ: A Retrospective *Radiol*. 2018 Aug 24. pii: S1076-6332(18)30383-0.
 4. So A, De La Cruz LM, Williams AD et al. impact of preoperative magnetic resonance imaging and lumpectomy cavity shavings on re-excision rate in pure ductal carcinoma in situ-A single institution's experience. *J Surg Oncol*. 2018 Mar;117(4):558-566.
 5. Lamb LR, Oseni TO, Lehman CD et al. Pre-operative MRI in patients with ductal carcinoma in situ: Is MRI useful for identifying additional disease? *Eur J Radiol*. 2020 Aug;129:109130. doi: 10.1016/j.ejrad.2020.109130.
 6. Lam DL, Smith J, Partridge S et al. The Impact of Preoperative Breast MRI on Surgical Management of Women with Newly Diagnosed Ductal Carcinoma In Situ. *Acad Radiol*. 2020 Apr;27(4):478-486. doi: 10.1016/j.acra.2019.05.013.
 7. Lee J, Jung JH, Kim WW et al. Efficacy of breast MRI for surgical decision in patients with breast cancer: ductal carcinoma in situ versus invasive ductal carcinoma. *BMC Cancer*. 2020 Sep 29;20(1):934. doi: 10.1186/s12885-020-07443-7.

Molecular Subtyping

1. Nofech-Mozes S, Hanna W, Rakovitch E. Molecular Evaluation of Breast Ductal Carcinoma in Situ with Oncotype DX DCIS. *Am J Pathol*. 2018 Dec 31. pii: S0002-9440(18)30581-9.



© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.

Guidelines Breast
Version 2021.1D


www.ago-online.de

FORSCHEN
LEHREN
HEILEN

Risk factors for upstaging from DCIS to invasive cancer in final surgical specimen

	Oxford
	LoE
Higher risk	
▪ DCIS without microcalcification in core needle or vacuum biopsy	3b
▪ Microcalcification $\geq 11,5$ mm	3b
▪ Presentation as tumor in MRI	3b
▪ Increased Ki-67 ($\geq 20\%$)	3b
▪ PR negative	3b
▪ High peak contrast enhancement on MRI	3b
▪ Irregularly shaped, non-circumscribed, heterogeneous or margin-enhancing tumors with intratumoral high signal intensity or peritumoral edema on MRI	3b
▪ Biopsy technique: diagnosis by core needle biopsy versus vacuum biopsy (smaller sampling volume)	3b
▪ High platelet-lymphocyte ratio	3b
Lower risk	
▪ Removal $\geq 90\%$ of the microcalcifications by vacuum biopsy	3b

1. Cheung YC, Chen SC, Ueng SH, et al. Ductal Carcinoma In Situ Underestimation of Microcalcifications Only by Stereotactic Vacuum-Assisted Breast Biopsy: A New Predictor of Specimens without Microcalcifications. J Clin Med. 2020 Sep; 9(9): 2999. Published online 2020 Sep 17. doi: 10.3390/jcm9092999
2. Yoon GY, Choi WJ, Cha JH, et al. The role of MRI and clinicopathologic features in predicting the invasive component of biopsy-confirmed ductal carcinoma in situ. BMC Med Imaging. 2020; 20: 95. Published online 2020 Aug 12. doi: 10.1186/s12880-020-00494-z
3. Takada K, Kashiwagi S, Asano Y, et al. Factors predictive of invasive ductal carcinoma in cases preoperatively diagnosed as ductal carcinoma in situ. BMC Cancer. 2020; 20: 513. Published online 2020 Jun 3. doi: 10.1186/s12885-020-07001-1



© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.

Guidelines Breast
Version 2021.1D

www.ago-online.de

FORSCHEN
LEHREN
HEILEN


Original Investigation

Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ


Narod A. et al.: JAMA Oncol. 2015 Oct;1(7):888-96

- **108.196 patients from the SEER data base,**
- **retrospective analysis,**
- **breast cancer specific mortality 3,3 %,**
- **results:**
 - **risk is greater for young and black women,**
 - **the risk of dying from breast cancer is increased after ipsilateral invasive recurrence [HR 18.1 (95% CI 14.0-23.6); $P < 0.001$] or contralateral invasive recurrence [HR 13.8 (95% CI 11.5-16.6); $P < 0.001$], but not after a DCIS recurrence (ipsilateral or contralateral),**
 - **the use of radiotherapy reduced the risk of developing an ipsilateral invasive recurrence from 4.9% to 2.5% but did not reduce breast cancer-specific mortality at 10 years (0.9% vs 0.8%).**

1. Narod SA, Iqbal J, Giannakeas V, Sopik V, Sun P.: Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ. JAMA Oncol. 2015 Oct;1(7):888-96

<div>  </div> <div> <p>© AGO e. V. in der DGGG e.V. sowie in der DKG e.V.</p> <p>Guidelines Breast Version 2021.1D</p> <p>www.ago-online.de</p> <p>FORSCHEN LEBEN HEILEN</p> </div>						
<div> <p>Original Investigation</p> <h1>Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ</h1> <p>Narod A. et al.: JAMA Oncol. 2015 Oct; 1(7): 888-96</p> </div>						
Treatment	Cases, No	10-Year BCS Mortality (95%CI), %	Univariate HR (95% CI)	P Value	Multivariate ³ HR (95%)	P Value
Lumpectomy						
Without radiotherapy	19762	0.9 (0.7 - 1.1)	1[Reference]		1[Reference]	
With radiotherapy	42250	0.8 (0.7 – 1.0)	0.86 (0.67 – 1.10)	0.22	0.81 (0.63 – 1.04)	0.10
all	63319	0.8 (0.7 – 1.0)	1[Reference]		1[Reference]	
Unilateral mastectomy	19515	1.3 (1.1 – 1.5)	1.45(1.18 – 1.79)	< 0.001	1.20(0.96 – 1.50)	0.11
<p>³ Adjusted for year of diagnosis, age of diagnosis, ethnicity, income, ER-status, tumor size and grade</p>						

1. Narod, SA, Iqbal J, Giannakeas V, Sopik V, Sun P.: Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ. JAMA Oncol. 2015 Oct;1(7):888-96



© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.

Guidelines Breast
Version 2021.1D

www.ago-online.de

FORSCHEN
LEBEN
HEILEN

Association of a Diagnosis of Ductal Carcinoma In Situ With Death From Breast Cancer

Giannakeas V, Sopik V, Narod SA. JAMA Netw Open. 2020 Sep 1;3(9):e2017124

- 144,524 women treated for DCIS, 1,540 women died of breast cancer,
- cohort study included data for women who had first primary DCIS diagnosed between 1995 and 2014 from the SEER registries database (use of ET is not reported),
- retrospective analysis,
- results:
 - standardized mortality ratio for death from breast cancer among women with DCIS was 3.36 (95% CI, 3.20-3.53),
 - risk is greater for young and black women,
 - 4,502 (3.1%) ipsilateral invasive recurrences, resulting in a 20-year actuarial risk of 13.9%,
 - 5,527 (3.8%) contralateral invasive breast cancers, resulting in a 20-year actuarial risk of 11.3%,
 - women with DCIS had a 3-fold increased risk of death from breast cancer compared to women without DCIS.

1. Giannakeas V, Sopik V, Narod SA. et al. Association of a Diagnosis of Ductal Carcinoma In Situ With Death From Breast Cancer. JAMA Netw Open. 2020 Sep 1;3(9):e2017124. doi: 10.1001/jamanetworkopen.2020.17124.

Gute klinische Praxis (GKP)

Exzision (BEO oder Mastektomie) ist die therapeutische Basis für die Behandlung des DCIS.

Die adjuvante Therapie (Strahlentherapie, endokrine Therapie) muss mit der Patientin auf der Basis einer Risiko-Nutzen-Bewertung individuell erörtert werden.

1. Kirsty E. Stuart, Nehmat Houssami, Richard Taylor, et al. Long-term outcomes of ductal carcinoma in situ of the breast: a systematic review, meta-analysis and meta-regression analysis. BMC Cancer (2015) 15:890.
2. Katrina B. Mitchell and Henry Kuerer. Ductal Carcinoma In Situ: Treatment Update and Current Trends. Curr Oncol Rep (2015) 17: 48
3. Elizabeth M. Ward, Carol E. DeSantis, Chun Chieh Lin, et al. Cancer Statistics: Breast Cancer In Situ. CA Cancer J Clin 2015;65:481–495.
4. Benjamin D. Smith. When Is Good Enough Really Good Enough? Defining the Role of Radiation in Low-Risk Ductal Carcinoma In Situ. J Clin Oncol 2015; 33(7): 686 – 692.
5. Laura Esserman, Christina Yau. Rethinking the Standard for Ductal Carcinoma In Situ Treatment. JAMA Oncology Published online August 20, 2015.
6. Steven A. Narod, Javaid Iqbal, Vasily Giannakeas, et al. Breast Cancer Mortality After a Diagnosis of Ductal Carcinoma In Situ. JAMA Oncol. doi:10.1001/jamaoncol.2015.2510 Published online August 20, 2015.
7. Hamilton SN, Nichol A, Wai E et al. Local Relapse After Breast-Conserving Therapy Versus Mastectomy for Extensive Pure Ductal Carcinoma In Situ ≥ 4 cm. Int J Radiat Oncol Biol Phys. 2018 Sep 22. pii: S0360-3016(18)33801-X
8. Gradishar WJ, Anderson BO, Balassanian R et al. Breast Cancer, Version 4.2017, NCCN Clinical Practice Guidelines in Oncology. J Natl Compr Canc Netw. 2018 Mar;16(3):310-320.

Operative Maßnahmen zur Therapie des histologisch gesicherten DCIS I

	Oxford		
	LoE	GR	AGO
▪ Exzision (drahtmarkiert)	2b	B	++
▪ Markierung mit drahtfreien Verfahren	3b	C	+/-
▪ Flankierende Drahtmarkierung bei großen Läsionen	3a	C	+
▪ Präparatradiographie bei Drahtmarkierung	2b	B	++
▪ Intraoperative Sonographie (darstellbarer Befund)	3a	C	+/-
▪ Sofortige Nachresektion bei knappen Resektionsrändern (Präparateradiographie)	1c	B	++
▪ Intraoperative Schnellschnittdiagnostik (Einzelfall für Schnittränder)	3a	D	+/-
▪ Interdisziplinäre Tumorboard-Präsentation	2b	C	++

Offene Biopsien suspekter Läsionen (mammographische Mikrokalzifikationen, suspekter US, MRI etc.) ohne präoperative Stanzbiopsie sollten vermieden werden.

Exzision (drahtmarkiert)

1. Houssami N, Ambrogetti D, Marinovich L et al. Accuracy of a preoperative model for predicting invasive breast cancer in women with ductal carcinoma in situ on vacuum assisted core needle biopsy. Ann Surg Oncol 2011;18(5):1364-71
2. Ryan R, Tawfik O, Jensen RA, et al. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. Prog Mol Biol Transl Sci. 2017;151:33-80.
3. Janssen NNY, van la Parra RFD, Loo CE et al. Breast conserving surgery for extensive DCIS using multiple radioactive seeds. Eur J Surg Oncol. 2018 Jan;44(1):67-73.
4. Hong YK, McMasters KM, Egger ME, Ajkay N: Ductal carcinoma in situ current trends, controversies, and review of literature. Am J Surg. 2018 Nov;216(5):998-1003
5. Kuerer HM, Smith BD, Chavez-MacGregor M, et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
6. DVerstehenden DPA, Keizer LGG, Schlooz-Vries MS, et al: Performance characteristics of specimen radiography for margin assessment for ductal carcinoma in situ: a systematic review. Breast Cancer Res Treat 2017;166:669–679.
7. Pieszko K, Wichtowski M, Cieciorowski M, et al. Evaluation of the nonradioactive inducible magnetic seed system Magseed for preoperative localization of nonpalpable breast lesions – initial clinical experience Contemp Oncol (Pozn) 2020; 24(1): 51–54. Published online 2020 Mar 13. doi: 10.5114/wo.2020.93677

8. Colombe Agahozo M, Berghuis SAM, van den Broek E, et al. Radioactive Seed Versus Wire-Guided Localization for Ductal Carcinoma in Situ of the Breast: Comparable Resection Margins. Ann Surg Oncol. 2020; 27(13): 5296–5302. Published online 2020 Jun 23. doi: 10.1245/s10434-020-08744-8

Intraoperative Sonographie (darstellbarer Befund)

1. Ahmed M, Douek M. Intra-operative ultrasound versus wire-guided localization in the surgical management of non-palpable breast cancers: systematic review and meta-analysis. Breast Cancer Res Treat. 2013; 140(3): 435-446.

Sofortige Nachresektion bei knappen Resektionsrändern (Präparateradiographie)

1. Thill M, Dittmer C, Baumann K, et al. MarginProbe®--final results of the German post-market study in breast conserving surgery of ductal carcinoma in situ. Breast. 2014 Feb;23(1):94-6. doi: 10.1016/j.breast.2013.11.002. Epub 2013 Dec 2.
2. Kuerer HM, Smith BD, Chavez-MacGregor M, et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.

Intraoperative Schnellschnittdiagnostik

1. Kuerer HM, Smith BD, Chavez-MacGregor M et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
2. Laws A, Brar MS, Bouchard-Fortier A, et al. surgery for ductal carcinoma in situ. J Surg Oncol. 2018 Dec;118(7):1205-1211.
3. Morrow M, Van Zee KJ, Solin LJ, Houssami N et al: Society of Surgical Oncology-American Society for Radiation Oncology-American Society of Clinical Oncology Consensus Guideline on Margins for Breast-Conserving Surgery with Whole-Breast Irradiation in Ductal Carcinoma In Situ. Ann Surg Oncol. 2016 Nov;23(12):3801-3810.

Operative Maßnahmen zur Therapie des histologisch gesicherten DCIS II

	Oxford		
	LoE	GR	AGO
▪ Histologisch freie Resektionsränder (pRi0)	1a	A	++
▪ Multifokalität: BEO falls möglich (inkl. RT)	2b	B	+
▪ Nachresektion bei knappem Resektionsrand (< 2 mm im Paraffinschnitt)*	2b	C	+
▪ Mastektomie** (große Läsionen; keine sicheren Ränder im Nachresektat)	2a	B	++
▪ SLNE			
▪ Mastektomie	3b	B	+
▪ BET	3b	B	--
▪ DCIS beim Mann	5	D	+/-
▪ Axilladisektion	2b	B	--

* individuelles Vorgehen mit Berücksichtigung Alter, Tumorgroße, Grading und Durchführung einer Bestrahlung, besonders wenn nicht nachbestrahlt wird
 ** Patientinnen mit einem tastbaren Tumor haben signifikant höhere Wahrscheinlichkeiten für eine okkulte Invasion (26%), Multizentrität und ein Lokalrezidiv.

Histologisch freie Resektionsränder (pR0)

1. Badruddoja M. Ductal carcinoma in situ of the breast: a surgical perspective. Int J Surg Oncol. 2012;2012:761364. doi: 10.1155/2012/761364. Epub 2012 Sep 4.
2. Hassani A, Griffith C, Harvey J. Size does matter: High volume breast surgeons accept smaller excision margins for wide local excision--a national survey of the surgical management of wide local excision margins in UK breast cancer patients. Breast. 2013 Oct;22(5):718-22.
3. Morrow M., et al: Society of Surgical Oncology –American Society for Radiation Oncology–American Society of Clinical Oncology Consensus Guideline on Margins for Breast-Conserving Surgery with Whole-Breast Irradiation in Ductal Carcinoma in Situ J CO 2016 34;33 :4040-4046
4. Salvatorelli L, Puzzo L, Vecchio GM, et al. Ductal Carcinoma In Situ of the Breast: An Update with Emphasis on Radiological and Morphological Features as Predictive Prognostic Factors. Cancers (Basel) 2020 Mar; 12(3): 609. Published online 2020 Mar 6. doi: 10.3390/cancers12030609

Multifokalität: BET falls möglich (inkl. RT)

1. Meijnen P, Bartelink H. Multifocal ductal carcinoma in situ of the breast: A contraindication for breast-conserving treatment? J Clin Oncol 2007;25:5548–5549

2. Rakovitch E, Pignol JP, Hanna W, et al. Significance of multifocality in ductal carcinoma in situ: outcomes of women treated with breast-conserving therapy. J Clin Oncol 2007;25:5591–5596

Nachresektion bei knappem Resektionsrand (< 2 mm im Paraffinschnitt)

1. Dunne, C., J. P. Burke, et al. (2009). "Effect of margin status on local recurrence after breast conservation and radiation therapy for ductal carcinoma in situ." J Clin Oncol 27(10): 1615-1620.
2. Van Cleef A, Altintas S, Huizing M et al. Current view on ductal carcinoma in situ and importance of the margin thresholds: A review. Facts Views Vis Obgyn. 2014;6(4):210-8.
3. Kuerer HM, Smith BD, Chavez-MacGregor M et al. DCIS Margins and Breast Conservation: MD Anderson Cancer Center Multidisciplinary Practice Guidelines and Outcomes. J Cancer. 2017;8(14):2653-2662.
4. Morrow M. De-escalating and escalating surgery in the management of early breast cancer. Breast. 2017 Aug;34 Suppl 1:S1-S4.

Mastektomie* (große Läsionen; keine sicheren Ränder im Nachresektat)

1. Carlson, G. W., A. Page, et al. (2007). "Local recurrence of ductal carcinoma in situ after skin-sparing mastectomy." J Am Coll Surg 204(5): 1074-1078; discussion 1078-1080.
2. Rudloff U, E Brogi et al. (2010): "The Influence of Margin Width and Volume of Disease Near Margin on Benefit of Radiation Therapy for Women With DCIS Treated With Breast-Conserving Therapy" Ann Surg (251) 583 – 591
3. Polyak K. Molecular markers for the diagnosis and management of ductal carcinoma in situ. J Natl Cancer Inst Monogr 2010; 41: 210-213
4. Houssami N, Ambrogetti D, Marinovich L et al. Accuracy of a preoperative model for predicting invasive breast cancer in women with ductal carcinoma in situ on vacuum assisted core needle biopsy. Ann Surg Oncol 2011;18(5):1364-71

SLNE* /Axilladisektion

1. Killelea BK, Long JB, Dang W, et al. Associations Between Sentinel Lymph Node Biopsy and Complications for Patients with Ductal Carcinoma In Situ. Ann Surg Oncol. 2018 Jun;25(6):1521-1529.
2. Hong YK, McMasters KM, Egger ME, Ajkay N: Ductal carcinoma in situ current trends, controversies, and review of literature. Am J Surg. 2018 Nov;216(5):998-1003
3. Karakatsanis A, Hersi AF, Pistiolis L: Effect of preoperative injection of superparamagnetic iron oxide particles on rates of sentinel lymph node dissection in women undergoing surgery for ductal carcinoma in situ (SentiNot study). Br J Surg. 2019 May;106(6):720-

728. doi: 10.1002/bjs.11110. Epub 2019 Mar 6.

4. Price A, Schnabel F, Chun J et al. Sentinel lymph node positivity in patients undergoing mastectomies for ductal carcinoma in situ (DCIS). Breast J. 2020 May;26(5):931-936. doi: 10.1111/tbj.13737.
5. Pyfer BJ, Jonczyk M, Jean J et al. Analysis of Surgical Trends for Axillary Lymph Node Management in Patients with Ductal Carcinoma In Situ Using the NSQIP Database: Are We Following National Guidelines? Ann Surg Oncol. 2020 Sep;27(9):3448-3455. doi: 10.1245/s10434-020-08374-0

Mastektomie

DCIS beim Mann

1. Chern J, Liao L, Baraldi R, et al. Case report: ductal carcinoma in situ in the male breast. Case Rep Radiol. 2012;2012:532527. doi: 10.1155/2012/532527. Epub 2012 Sep 26.

BET

1. Meijnen P, Oldenburg HS, Loo CE, et al. Risk of invasion and axillary lymph node metastasis in ductal carcinoma in situ diagnosed by core-needle biopsy. Br J Surg 2007;94:952-6
2. Miyake T, Shimazu K, Ohashi H, et al. Indication for sentinel lymph node biopsy for breast cancer when core biopsy shows ductal carcinoma in situ. The American Journal of Surgery 2011; 202: 59-65 :394095. doi: 10.5402/2012/394095. Epub 2012 May 14.
3. De Lorenzi F, Di Bella J, Maisonneuve P et al. Oncoplastic breast surgery for the management of ductal carcinoma in situ (DCIS): is it oncologically safe? A retrospective cohort analysis. Eur J Surg Oncol. 2018 Jul;44(7):957-962.

Prognostische Faktoren für das Auftreten eines ipsilateralen Rezidivs nach DCIS

	LoE
▪ Resektionsränder	1a
▪ Alter	1a
▪ Größe	1a
▪ Grading	1a
▪ Wachstumsmuster (kribriform/ solide versus „clinging“/ mikropapillär)	2b
▪ Komedonekrose	1a
▪ Diagnostische Methode	1a
▪ Fokalität	1a
▪ HER2-Überexpression	1a
▪ ER/PR (positiv vs. negativ)	1a
▪ Residuelle Tumor-assoziierte Mikrokalzifikationen	2b
▪ Architektur	2b
▪ (mod.) Van Nuys Prognose Index / Mitoserate	2b
▪ Palpables DCIS	2b
▪ ER-, HER2+, Ki-67+	2b
▪ Scores: DCIS (9 gene recurrence score), CCP (23 genes)	2b
▪ MSKCC Nomogram	2b
▪ Intrinsische Subgruppen (Luminal A,B, HER+, triple negativ)	2b
▪ Familiäre Mammakarzinombelastung	2a
▪ Prämenopause bei DCIS Erkrankung	2a
▪ Hoher BMI	2a
▪ Hohe Brustdichte	2a
▪ DCIS im Vergleich zum invasiven Karzinom mit höherem Risiko für kontralaterales MaCa	2b

1. Visser LL, Elshof LE, Schaapveld M et al. Clinicopathological Risk Factors for an Invasive Breast Cancer recurrence after Ductal Carcinoma In Situ-A Nested Case-Control Study. Clin Cancer Res. 2018 Aug 1;24(15):3593-3601.
2. Rakovitch E, Gray R, Baehner FL et al. Refined estimates of local recurrence risks by DCIS score adjusting for clinicopathological features: a combined analysis of ECOG-ACRIN E5194 and Ontario DCIS cohort studies. Breast Cancer Res Treat. 2018 Jun;169(2):359-369
3. Cutuli B: Ductal carcinoma in situ in 2019: Diagnosis, treatment, prognosis. Presse Med. 2019 Oct;48(10):1112-1122
4. Badve SS, Gökmen-Polar: Ductal carcinoma in situ of breast: update 2019. Pathology. 2019 Oct;51(6):563-569.
5. Van Bockstal MR, Agahozo MC, Koppert LB: A retrospective alternative for active surveillance trials for ductal carcinoma in situ of the breast. Int J Cancer. 2020 Mar 1;146(5):1189-1197
6. Solin LJ: Management of Ductal Carcinoma In Situ (DCIS) of the Breast: Present Approaches and Future Directions. Curr Oncol Rep. 2019 Mar 5;21(4):33
7. Giannakeas V, Sopik V, Narod SA. Association of a Diagnosis of Ductal Carcinoma In Situ With Death From Breast Cancer. JAMA Netw Open. 2020 Sep; 3(9): e2017124. Published online 2020 Sep 16. doi: 10.1001/jamanetworkopen.2020.17124
8. Groen EJ, Hudecek J, Mulder L, et al. Prognostic value of histopathological DCIS features in a large-scale international interrater reliability study. Breast Cancer Res Treat. 2020; 183(3): 759–770. Published online 2020 Jul 30. doi: 10.1007/s10549-020-05816-x

Diagnostische Methode

1. Park HS, Park S, Cho J, et al. Risk predictors of underestimation and the need for sentinel node biopsy in patients diagnosed with ductal carcinoma in situ by preoperative needle biopsy. J Surg Oncol. 2013 Mar;107(4):388-92. doi: 10.1002/jso.23273. Epub 2012 Sep 24.
2. Schulz S, Sinn P, Golatta M, et al. Prediction of underestimated invasiveness in patients with ductal carcinoma in situ of the breast on percutaneous biopsy as rationale for recommending concurrent sentinel lymph node biopsy. Breast. 2013 Aug;22(4):537-42.
3. Elshof LE, Schmidt MK, Rutgers EJ, et al. Cause-specific Mortality in a Population-based Cohort of 9799 Women Treated for Ductal Carcinoma In Situ. Ann Surg. 2017 Apr 3. doi: 10.1097/SLA.0000000000002239. [Epub ahead of print]
4. Punglia RS, Jiang W, Lipsitz SR, et al. Clinical risk score to predict likelihood of recurrence after ductal carcinoma in situ treated with breast-conserving surgery. Breast Cancer Res Treat. 2017 Oct 28. doi: 10.1007/s10549-017-4553-5. [Epub ahead of print]

Fokalität

1. Meijnen P, Bartelink H. Multifocal ductal carcinoma in situ of the breast: A contraindication for breast-conserving treatment? J Clin Oncol 2007;25:5548–5549
2. Rakovitch E, Pignol JP, Hanna W, et al. Significance of multifocality in ductal carcinoma in situ: outcomes of women treated with breast-conserving therapy. J Clin Oncol 2007;25:5591–5596

(mod.) Van Nuys Prognose Index und MSKCC Nomogramm

1. Lagios MD, Page DL, Silverstein MJ. Prospective study of wide excision alone for ductal carcinoma in situ of the breast. J Clin Oncol 2006;24:3809-11
2. Rudloff U, Jacks LM, Goldberg JL, et al. Nomogram for predicting the risk of local recurrence after breast conserving surgery for ductal carcinoma in situ. J Clin Oncol 2010; 28(23): 3762-9
3. Van Zee KJ, Patil S. Validation of a nomogram for predicting risk of local recurrence for ductal carcinoma in situ. J Clin Oncol 2012; 30(25): 3143-4.
4. Sweldens C, Peeters S, van Limbergen E, et al. Öocal relapse after breast-conserving therapy for ductal carcinoma in situ: a European single-center experience and external validation of the Memorial Sloan-Kettering Cancer Center DCIS nomogram. Cancer J 2014; 20(1): 1-7.

Palpables DCIS

Palpabel + COX-2+p16+Ki-67+

Palpabel + ER-, HER2, +Ki-67+

HER2-Überexpression

ER/PgR (positiv vs. negativ)

DCIS-Score

1. Solin LJ, Gray R, Baehner FL, et al. A multigene expression assay to predict local recurrence risk for ductal carcinoma in situ of the breast. J Natl Cancer Inst. 2013 May 15;105(10):701-10.
2. Sarah Patricia Cate, Alyssa Gillego, Manjeet Chadha, et al. Does the Oncotype DCIS score impact treatment decisions? J Clin Oncol 31, 2013 (suppl 26; abstr 91)
3. Rakovitch E, Nofech-Mozes S, Hanna W et al. A large prospectively-designed study of the DCIS score. Predicting recurrence risk after local excision for ductal carcinoma in situ patients with and without irradiation. SABCS 2015. S5-04
4. Wood WC, Alvarado M, Buchholz DJ, et al. The current clinical value of the DCIS Score. Oncology (Williston Park). 2014 May;28 Suppl 2:C2, 1-8, C3.
5. O'Keefe TJ, Blair SL, Hosseini A et al. HER2-Overexpressing Ductal Carcinoma In Situ Associated with Increased Risk of Ipsilateral Invasive Recurrence, Receptor Discordance with Recurrence. Cancer Prev Res (Phila). 2020 Sep;13(9):761-772. doi: 10.1158/1940-6207.CAPR-20-0024.
6. Lazzeroni M, DeCensi A, Guerrieri-Gonzaga A et al. Prognostic and predictive value of cell cycle progression (CCP) score in ductal carcinoma in situ of the breast. Mod Pathol. 2020 Jun;33(6):1065-1077. doi: 10.1038/s41379-020-0452-0.

DCIS mit Mikroinvasion – Behandlung analog zum invasiven Karzinom

1. Eng-Wong J, JP Costantino et al. The Impact of Systemic Therapy Following Ductal Carcinoma In Situ. J Natl Cancer Inst Monogr 2010; 41: 200 – 203
2. Ryan R, Tawfik O, Jensen RA, Anant S. Current Approaches to Diagnosis and Treatment of Ductal Carcinoma In Situ and Future Directions. Prog Mol Biol Transl Sci. 2017;151:33-80.

Intrinsische Subgruppen (Luminal A,B, HER+, triple negativ)

1. Noh JM, Lee J, Choi DH, et al. HER-2 overexpression is not associated with increased ipsilateral breast tumor recurrence in DCIS treated with breast-conserving surgery followed by radiotherapy. Breast. 2013 Oct;22(5):894-7.
2. Solin LJ.: Management of Ductal Carcinoma In Situ (DCIS) of the Breast: Present Approaches and Future Directions. Curr Oncol Rep.

2019 Mar 5;21(4):33. doi: 10.1007/s11912-019-0777-3.

3. Visser LL, Groen EJ, van Leeuwen FE, et al.: Predictors of an Invasive Breast Cancer Recurrence after DCIS: A Systematic Review and Meta-analyses. Cancer Epidemiol Biomarkers Prev. 2019 May;28(5):835-845. doi: 10.1158/1055-9965.EPI-18-0976. Epub 2019 Apr 25.
4. Van Bockstal MR, Agahozo MC, Koppert LB, van Deurzen CHM. A retrospective alternative for active surveillance trials for ductal carcinoma in situ of the breast. Int J Cancer. 2019 Apr 24. doi: 10.1002/ijc.32362. [Epub ahead of print]
5. Liu Y, Shou K, Li J, et al. Ductal Carcinoma In Situ of the Breast: Perspectives on Tumor Subtype and Treatment. Biomed Res Int. 2020; 2020: 7251431. Published online 2020 May 27. doi: 10.1155/2020/7251431

Familiäre Karzinombelastung, Menopausenstatus, BMI und Brustdichte

1. Alaeikhanehshir S, Engelhardt EG, van Duijnhoven FH, et al. The impact of patient characteristics and lifestyle factors on the risk of an ipsilateral event after a primary DCIS: A systematic review. Breast. 2020 Apr; 50: 95–103. Published online 2020 Feb 19. doi: 10.1016/j.breast.2020.02.006

Kontralaterales Mammakarzinom

1. Giardiello D, Kramer I, Hooning MJ, et al. Contralateral breast cancer risk in patients with ductal carcinoma in situ and invasive breast cancer. NPJ Breast Cancer. 2020; 6: 60. Published online 2020 Nov 3. doi: 10.1038/s41523-020-00202-8

DCIS Strahlentherapie Statements

- **Strahlentherapie hat keinen Einfluss auf das Gesamtüberleben.** **LoE 1a**
- **Strahlentherapie reduziert das ipsilaterale Lokalrezidivrisiko (invasiv und nicht-invasiv) um 50 %.** **LoE 1a**
- **Das Vermeiden eines invasiven Rezidivs ist sehr wahrscheinlich nicht mit einem Überlebensvorteil verbunden.** **LoE 2b**
- **Der absolute individuelle Benefit der Strahlentherapie ist vom individuellen Lokalrezidivrisiko abhängig.**
- **The number needed to treat (für jedes Auftreten eines In-Brust-Rezidivs) ist 9 (über alle Risikogruppen)**

1. Bagenal J, Roche N, Ross G, Kirby A, Dodwell D: Should patients with ductal carcinoma in situ be treated with adjuvant whole breast radiotherapy after breast conservation surgery? BMJ. 2018 May 17;361:k1410. doi: 10.1136/bmj.k1410. Review.
2. Lebeau A, Kühn T.: Updates in the treatment of ductal carcinoma in situ of the breast. Curr Opin Obstet Gynecol. 2016 Feb;28(1):49-58.
3. Mannu GS, Wang Z, Broggio J et al. Invasive breast cancer and breast cancer mortality after ductal carcinoma in situ in women attending for breast screening in England, 1988-2014: population based observational cohort study. BMJ. 2020 May 27;369:m1570. doi: 10.1136/bmj.m1570.
4. Weinmann S, Leo MC, Francisco M et al. Validation of a Ductal Carcinoma In Situ Biomarker Profile for Risk of Recurrence after Breast-Conserving Surgery with and without Radiotherapy. Clin Cancer Res. 2020 Aug 1;26(15):4054-4063. doi: 10.1158/1078-0432.CCR-19-1152. DCISionRT test, the DS was prognostic for the risk of later breast events for women diagnosed with DCIS, following BCS.
5. Yang L, Lu D, Lai Y et al. Prognostic Score-Based Stratification Analysis Reveals Universal Benefits of Radiotherapy on Lowering the Risk of Ipsilateral Breast Event for Ductal Carcinoma In Situ Patients with Different Risk Levels. Ann Surg Oncol. 2020 Aug 13. doi: 10.1245/s10434-020-09003-6.

DCIS

adjuvante Strahlentherapie

	Oxford		
	LoE	GR	AGO
Radiotherapie nach:			
▪ Brusterhaltender Operation (BEO) ; (gesamte Brust, WBI)	1a	A	++
▪ Mastektomie	2b	B	--
Durchführung der Radiotherapie:			
▪ Konventionell fraktionierte Radiotherapie (50 Gy in 25 Frakt.)	1a	A	+
▪ Hypofraktionierte Radiotherapie (40-42,5 Gy in 15-16 Frakt.)	1a	A	+
▪ Boost-RT des Tumorbettes	1b	B	+/-
▪ Bei Risikofaktoren* (absoluter Vorteil 5-J-RFS 4%, Fibroserate signifikant erhöht)	1b ^a	B	+/-
▪ Ohne Risikofaktoren	2b	B	-
▪ Teilbrustbestrahlung [Alter ≥ 50 Jahre, DCIS ≤ 3 cm, G1-2, R0 (≥ 5 mm), unifokal/ unizentrisch]	1b	B	+

NW und Nachteile der Radiotherapie müssen gegenüber der erreichbaren Risikoreduktion abgewogen werden. Ein Verzicht auf eine Strahlentherapie nach BEO bedeutet ein erhöhtes lokales Rezidivrisiko ohne Einfluss auf das Überleben. Dieses gilt auch für Patientinnen mit günstigen prognostischen Faktoren (low-risk-Subgruppe; Level I-Evidenz): < 2,5 cm, low and intermediate nuclear grade, mammographisch entdeckt

* < 50 J. oder ≥ 50 J. und Diagnose durch Symptomatik, ≥ 15 mm, Multifokalität, tastbarer Tumor, Resektionsränder < 10 mm, G2/3, zentrale Nekrose, Komedo-Typ

Radiotherapie nach: Brusterhaltender Operation (BEO) (gesamte Brust, WBI)

1. EBCTCG Correa C et al. Overview of the randomized trials of radiotherapy in ductal carcinoma in situ of the breast. J Natl Cancer Inst Monogr. 2010 (41); 162 – 77
2. Abram Recht. Are the Randomized Trials of Radiation Therapy for Ductal Carcinoma in Situ Still Relevant? J Clin Oncol 2014; 32(22): 3588
3. Lawrence J. Solin, Robert Gray, Lorie L. Hughes et al. Surgical Excision Without Radiation for Ductal Carcinoma in Situ of the Breast: 12-Year Results From the ECOG-ACRIN E5194 Study. J Clin Oncol 2015; 33 (33):3938
4. Beryl McCormick, Kathryn Winter, Clifford Hudis, et al. RTOG 9804: A Prospective Randomized

Benefits of Radiotherapy on Lowering the Risk of Ipsilateral Breast Event for Ductal Carcinoma In Situ Patients with Different Risk Levels. Ann Surg Oncol. 2020 Aug 13. doi: 10.1245/s10434-020-09003-6.

10. King MT, Link EK, Whelan TJ et al. BIG 3-07/TROG 07.01 trial investigators. Quality of life after breast-conserving therapy and adjuvant radiotherapy for non-low-risk ductal carcinoma in situ (BIG 3-07/TROG 07.01): 2-year results of a randomised, controlled, phase 3 trial. Lancet Oncol. 2020 May;21(5):685-698. doi: 10.1016/S1470-2045(20)30085-1.

Boost

1. Chua BH, Link E, Kunkler I, et al. Randomized phase III study of radiation doses and fractionation in non-low risk DCIS of the breast. SABCS, 2020

Mastektomie

1. Chadha M, Portenoy J, Boolbol SK, et al. Is there a role for postmastectomy radiation therapy in ductal carcinoma in situ? Int J Surg Oncol 2012;2012:423520. doi: 10.1155/2012/423520. Epub 2012 Jun 13.

Teilbrustbestrahlung

1. Whelan TJ, Julian JA, Berrang TS: External beam accelerated partial breast irradiation versus whole breast irradiation after breast conserving surgery in women with ductal carcinoma in situ and node-negative breast cancer (RAPID): a randomised controlled trial. Lancet. 2019 Dec 14;394(10215):2165-2172. doi: 10.1016/S0140-6736(19)32515-2.
2. Vicini FA, Cecchini RS, White JR et al.: Long-term primary results of accelerated partial breast irradiation after breast-conserving surgery for early-stage breast cancer: a randomised, phase 3, equivalence trial. Lancet. 2019 Dec 14;394(10215):2155-2164
3. Strnad V, Krug D, Sedlmayer F, et al. Breast Cancer Expert Panel of the German Society of Radiation Oncology (DEGRO). DEGRO practical guideline for partial-breast irradiation. Strahlenther Onkol. 2020; 196(9): 749–763. Published online 2020 Apr 29. doi: 10.1007/s00066-020-01613-z

Intraoperative Strahlentherapie beim DCIS

1. Banks A, Coronado G, Zimmerman R et al. Breast conserving surgery with targeted intraoperative radiotherapy for the management of ductal carcinoma in situ. J Surg Oncol. 2018 Dec 27. doi: 10.1002/jso.25347. [Epub ahead of print]

DCIS – adjuvante Systemtherapie

- **Adjuvante endokrine Therapie hat keinen Einfluss auf das Gesamtüberleben.** **LoE 1a**
- **Endokrine Therapie kann einen geringen Effekt auf die ipsilateralen invasiven und DCIS-Rezidive haben.** **LoE 1a**
- **Endokrine Therapie hat einen Effekt auf die kontralateralen invasiven und in-situ Karzinome.** **LoE 1a**
- **The number needed to treat (für jedes In-Brust-Rezidiv) ist 15.** **LoE 1a**
- **The number needed to treat zur Prävention eines invasiven Mammakarzinoms ist 29 für Anastrozol vs. 59 für Tamoxifen.*** **LoE 1b**

* innerhalb von 12 Jahren; entsprechend der IBIS II-Studie

1. El Hage Chehade H, Mokbel K. Is Adjuvant Endocrine Therapy Indicated for DCIS Patients After Complete Surgical Excision? Anticancer Res. 2018 Mar;38(3):1263-1266.
2. Johnston SR: Endocrine treatment for ductal carcinoma in situ: balancing risks and benefits. Lancet. 2016 Feb 27;387(10021):819-21.
3. Altundag K: Is it rational to extend the duration of preventive endocrine treatment in hormone receptor positive ductal carcinoma in situ? J BUON. 2018 May-Jun;23(3):835.
4. Cuzick J, Sestak I, Forbes JF et al. Use of anastrozole for breast cancer prevention (IBIS-II): long-term results of a randomised controlled trial. Lancet. 2020 Jan 11;395(10218):117-122. doi: 10.1016/S0140-6736(19)33055-1

DCIS – adjuvante Systemtherapie

	Oxford		
	LoE	GR	AGO
▪ Tamoxifen (nur ER+) 20m	1a	A	+/-*
▪ Tamoxifen (nur ER+) 5mg (Langzeitdaten fehlen)	2b ^a	B	+/-*
▪ Aromataseinhibitor (nur ER+) bei postmenopausalen Patientinnen	1b	A	+/-**
▪ Trastuzumab (nur HER2+)	5	D	--

* Indikation zur Therapie ist von Risikofaktoren, Nebenwirkungen und Patientinnenpräferenz abhängig

Anastrozol versus Tamoxifen: Anastrozol mehr Frakturen (OR 1,34), Tamoxifen mehr Schlaganfälle (OR 3,10) und TIA (OR 3,10)

Tamoxifen (nur ER+, nur BET)

1. Fisher B, Dignam J, Wolmark N, et al. Tamoxifen in treatment of intraductal breast cancer: National Surgical Adjuvant Breast and Bowel Project B-24 randomised controlled trial. Lancet. 1999 Jun 12;353(9169):1993-2000.
2. Cuzick J, I Sestak et al. (2010): "Effect of Tamoxifen and radiotherapy in women with locally excised ductal carcinoma in situ: long-term results form the UK / ANZ DCIS trial" Lancet Oncol (12) 21- 29
3. Wapnir IL, Dignam JJ, Fisher B, et al. Long-Term Outcomes of invasive ipsilateral breast tumor recurrences after lumpectomy in NSABP B-17 and B-24 randomized clinical trials for DCIS. J Natl Cancer Inst 2011; 103: 478-488
4. Staley H, McCallum I, Bruce J. Postoperative Tamoxifen for ductal carcinoma in situ: Cochrane systematic review and meta-analysis. Breast. 2014 Oct;23(5):546-51. doi: 10.1016/j.breast.2014.06.015. Epub 2014 Jul 9
5. El Hage Chehade H, Mokbel K. Is Adjuvant Endocrine Therapy Indicated for DCIS Patients After Complete Surgical Excision? Anticancer Res. 2018 Mar;38(3):1263-1266.
6. Johnston SR: Endocrine treatment for ductal carcinoma in situ: balancing risks and benefits. Lancet. 2016 Feb 27;387(10021):819-21.
7. Altundag K: Is it rational to extend the duration of preventive endocrine treatment in hormone receptor positive ductal carcinoma in situ? J BUON. 2018 May-Jun;23(3):835.

AI (wenn postmenopausal)

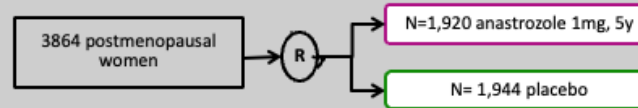
1. Richard G Margoese, Reena S Cecchini, Thomas B Julian, et al. Anastrozole versus tamoxifen in postmenopausal women with ductal carcinoma in situ undergoing lumpectomy plus radiotherapy (NSABP B-35): a randomised, double-blind, phase 3 clinical trial. www.thelancet.com Published online December 10, 2015
2. Patricia A Ganz, Reena S Cecchini, Thomas B Julian, et al. Patient-reported outcomes with anastrozole versus tamoxifen for postmenopausal patients with ductal carcinoma in situ treated with lumpectomy plus radiotherapy (NSABP B-35): a randomised, double-blind, phase 3 clinical trial. www.thelancet.com Published online December 10, 2015
3. John F Forbes, Ivana Sestak, Anthony Howell, et al. Anastrozole versus tamoxifen for the prevention of locoregional and contralateral breast cancer in postmenopausal women with locally excised ductal carcinoma in situ (IBIS-II DCIS): a double-blind, randomized controlled trial. www.thelancet.com Published online December 11, 2015.
4. Wang L, Xia Y, Liu D, et al. Evaluating the efficacy of post-surgery adjuvant therapies used for ductal carcinoma (ca. in situ) patients: a network meta-analysis. *Oncotarget*. 2017;8(45):79257-79269.

AI vs. Tamoxifen

1. Cuzick J, Sestak I, Forbes JF et al. Use of anastrozole for breast cancer prevention (IBIS-II): long-term results of a randomised controlled trial. *Lancet*. 2020 Jan 11;395(10218):117-122. doi: 10.1016/S0140-6736(19)32955-1.
2. Yan Y, Zhang L, Tan L et al. Endocrine Therapy for Ductal Carcinoma In Situ (DCIS) of the Breast with Breast Conserving Surgery (BCS) and Radiotherapy (RT): a Meta-Analysis. *Pathol Oncol Res*. 2020 Jan;26(1):521-531. doi: 10.1007/s12253-018-0553-y.
3. Sestak I, Cuzick J, Bonanni B, et al. Updates long-term results of anastrozole versus tamoxifen for the prevention of breast cancer in postmenopausal women with locally excised ductal carcinoma In-situ (IBIS-II DCIS). *SABCS*, 2020


Use of anastrozole for breast cancer prevention (IBIS-II): long-term results of a randomised controlled trial

Cuzick J et al, Lancet 2020



- N = 3,864 postmenopausal women at increased risk for breast cancer,
- median follow-up of 131 months,
- results:
 - 49% reduction of all breast cancers with anastrozole (HR 0.51, 95% CI 0.39–0.66, $p < 0.0001$),
 - significant reduction in incidence for anastrozole for ductal carcinoma in situ (HR 0.41, 0.22–0.79, $p = 0.0081$), especially for oestrogen-positive (HR 0.22, 0.07–0.65, $p = 0.0062$),
 - 5-year adherence anastrozole 74.6% vs. 77.0% for placebo,
 - no difference in major side effects (fractures, myocardial infarctions, deep vein thrombosis, pulmonary embolism),
 - NNT to prevent one breast cancer during 12 years: 29 (anastrozole) vs. 59 (tamoxifen).

1. Cuzick J, Sestak I, Forbes JF et al. Use of anastrozole for breast cancer prevention (IBIS-II): long-term results of a randomised controlled trial. Lancet. 2020 Jan 11;395(10218):117-122. doi: 10.1016/S0140-6736(19)32955-1.
2. Cuzick J, Sestak I, Cawthorn S, et al. Tamoxifen for prevention of breast cancer: extended long-term follow-up of the IBIS-I breast cancer prevention trial. Lancet Oncol 2015; 16: 67–75.



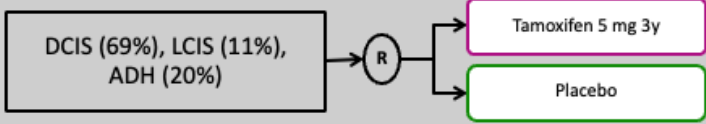
© AGO e. V.
in der DGGG e.V.
sowie
in der DKG e.V.
Guidelines Breast
Version 2021.1D

www.ago-online.de

FORSCHEN
LEBEN
HEILEN

Low dose Tamoxifen (5mg) in premalignant lesions

Lazzeroni M et al: Breast 2019



```

graph LR
    A["DCIS (69%), LCIS (11%), ADH (20%)"] --> B((R))
    B --> C["Tamoxifen 5 mg 3y"]
    B --> D["Placebo"]
          
```

- **N = 500,**
- **follow-up 5.69 years,**
- **results:**
 - **EFS: Tam 5.5% (14/253) vs. Placebo 11.3% (28/247),**
 - **severe adverse event with same incidence (endometrial cancer Tam 1 vs. PLAC 0, thrombo-embolic event Tam 1 vs. PLAC 1)**
 - **adherence Tam 65% vs. PLAC 61%.**

1. Lazzeroni M, Puntoni M, Provinciali N et al.: Estimating the magnitude of clinical benefit of systemic therapy in patients with DCIS or pre-invasive disease of the breast. Breast. 2019 Nov;48 Suppl 1:S39-S43.
2. DeCensi A, Puntoni M, Guerrieri-Gonzaga A: Randomized Placebo Controlled Trial of Low-Dose Tamoxifen to Prevent Local and Contralateral Recurrence in Breast Intraepithelial Neoplasia. J Clin Oncol. 2019 Jul 1;37(19):1629-1637.

Behandlung des Lokalrezidivs des DCIS nach Tumorektomie

	Oxford		
	LoE	GR	AGO
Nach vorangegangener Bestrahlung:			
▪ Einfache Mastektomie	3a	C	+
+ SLNE	5	D	+
▪ Sekundäre brusterhaltende Operation	5	D	+/-
Ohne vorangegangene Bestrahlung:			
▪ Therapieindikation wie bei primärer Erkrankung	3	C	++
Prognose für invasive Rezidive scheint besser zu sein als bei primären invasiven Karzinomen. Ca. 50% der Rezidive sind invasiv.			

Nach Radiatio

Einfache Mastektomie

+ SN B

1. Silverstein MJ, MD Lagios et al (1998): "Outcome After Invasive Local Recurrence in Patients With Ductal Carcinoma In Situ of the Breast" J Clin Oncol 16:1367-1373

Sekundäre Tumorektomie führt zu Rezidiven in bis zu 30 % der Fälle (NSABP B17)

1. Fisher ER, Dignam J, Tan-Chiu E et al. (1999): "Pathologic findings from the National Surgical Adjuvant Breast Project (NSABP) eight-year update of Protocol B-17: intraductal carcinoma" Cancer 86: 429 – 438

Keine Radiotherapie

Therapieindikation wie bei primär Erkrankung