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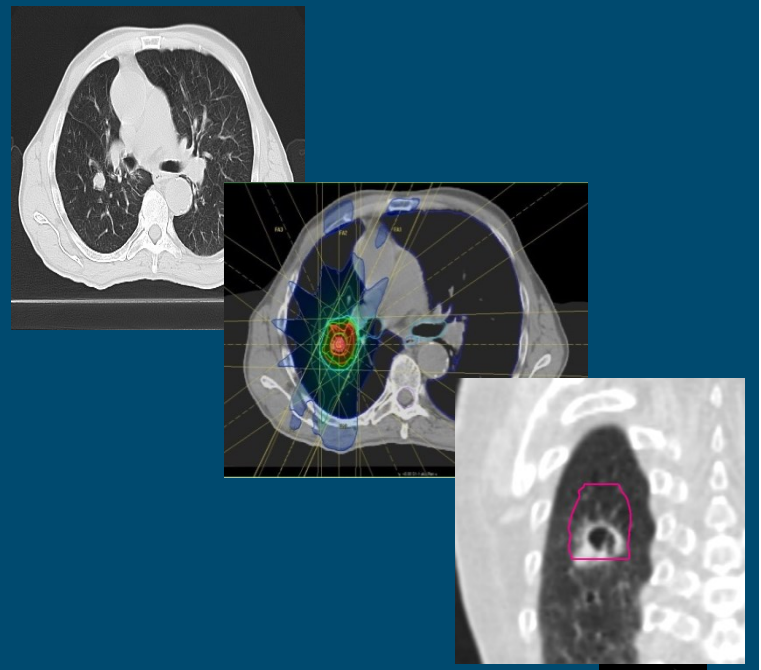
HIT Heidelberger Ionenstrahl-Therapiezentrum

UPDATE: SBRT von Oligometastasen der Lunge



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UKHD

Original Study

Long-term Follow-up and Patterns of Recurrence of Patients With Oligometastatic NSCLC Treated With Pulmonary SBRT

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Clinical Lung Cancer Juni 2019

Patientencharakteristika

Table 1 Patient and Lung Metastases Characteristics

Patients	No. Patients	All Patients (A), n (%)	Patients Without Early Progression (B), n (%)	Patients With Early Progression (C), n (%)	*P* Value (Comparison Group A vs. B + C)	*P* Value (Comparison Group B vs. C)
Gender	301		57	47		
Male		200 (66.4)	43 (75.4)	31 (66.0)	.376	.288
Female		101 (33.6)	14 (24.6)	16 (34.0)		
Median age (range), y	301	68.5 (40.7-87.6)	68.2 (47.2-86.1)	66.5 (40.7-79.0)	.234	.531
Median Karnofsky performance score (range), %	281	80 (40-100)	80 (60-100)	80 (60-100)	.285	.734
T-stage at first diagnosis	293		55	43		
T1		74 (25.3)	15 (27.3)	10 (23.3)	.637	***.013***
T2		107 (36.5)	25 (45.5)	17 (39.5)		
T3		66 (22.5)	5 (9.1)	14 (32.6)		
T4		46 (15.7)	10 (18.1)	2 (4.6)		
N-stage at first diagnosis	296		57	44		
N0		155 (52.4)	34 (59.6)	24 (54.5)	.705	***.018***
N1		52 (17.6)	8 (14.0)	10 (22.7)		
N2		69 (23.3)	14 (24.6)	4 (9.1)		
N3		20 (6.8)	1 (1.8)	6 (13.6)		
No. Metastases	301		57	47		
Solitary		202 (67.1)	41 (71.9)	29 (61.7)	.970	.286
Multiple		99 (32.9)	16 (28.1)	18 (38.3)		
Time to metastasis	300		57	47		
Synchronous		75 (25.0)	15 (26.3)	11 (23.4)	.841	.733
Metachronous		225 (75.0)	42 (73.7)	36 (76.6)		
Histology	301		57	47		
Squamous cell carcinoma		144 (47.8)	27 (47.4)	19 (40.4)	.525	.478
Adenocarcinoma		157 (52.2)	30 (52.6)	28 (59.6)		
Mutation type	102		57	47	.807	.893
None		91 (89.2)	13 (86.7)	15 (88.2)		
EGFR		9 (8.8)	2 (13.3)	2 (11.8)		
EML4ALK		2 (2.0)	0 (0)	0 (0.0)		
Complete consolidative therapy	294		57	47		
Yes		236 (80.3)	50 (87.7)	42 (89.4)	.059	.794
No		58 (19.7)	7 (12.3)	5 (10.6)		

Pulmonary Metastases	No. Pulmonary Metastases	All Pulmonary Metastases (A), n (%)	Patients Without Early Progression (B), n (%)	Patients With Early Progression (C), n (%)	*P* Value (Comparison Group A vs. B + C)	*P* Value (Comparison Group B vs. C)
Maximum metastasis diameter, (range) cm	320	1.8 (0.2-8.0)	1.6 (0.9-7.0)	1.9 (0.6-4.9)	.445	.884
Metastasis location	312		56	48		
Central		52 (15.7)	4 (7.1)	8 (16.7)	.298	.130
Peripheral		263 (84.3)	52 (92.9)	40 (83.3)		

301 oligometastasierte NSCLC-Patienten mit 336 Lungenmetastasen

Weitere Metastasen wurden ebenfalls behandelt

Behandlungscharakteristika

Table 2 Treatment Characteristics

Patients	No. Patients	All Patients (A), n (%)	Patients Without Early Progression (B), n (%)	Patients With Early Progression (C), n (%)	*P* Value (Comparison Group A vs. B + C)	*P* Value (Comparison Group B vs. C)
Primary treatment of the NSCLC at first diagnosis	301		57	47		
Surgery	298		57	45	.715	.501
Yes		175 (58.7)	33 (57.9)	29 (64.4)		
No		123 (41.3)	24 (42.1)	16 (35.6)		
Adjuvant CHT	175				.611	.706
Yes		70 (40.0)	11 (33.3)	11 (37.9)		
No		105 (60.0)	22 (66.7)	18 (62.1)		
Adjuvant RT	175				.523	.569
Yes		37 (21.1)	5 (15.2)	6 (20.7)		
No		138 (78.9)	28 (84.8)	23 (79.3)		
Adjuvant targeted therapy	175				.752	.345
Yes		4 (2.3)	1 (3.0)	0 (0.0)		
No		171 (97.7)	32 (97.0)	29 (100.0)		
Definitive RT/RCHT	123				.341	.588
Yes		99 (80.5)	21 (87.5)	13 (81.25)		
No		24 (19.5)	3 (12.5)	3 (18.75)		
CHT	123				.397	.273
Yes		23 (18.7)	3 (100.0)	2 (67.7)		
No		100 (74.1)	0 (0.0)	1 (33.3)		
Targeted therapies	123				.452	.273
Yes		1 (0.8)	0 (0.0)	1 (33.3)		
No		122 (99.2)	3 (100.0)	2 (67.7)		

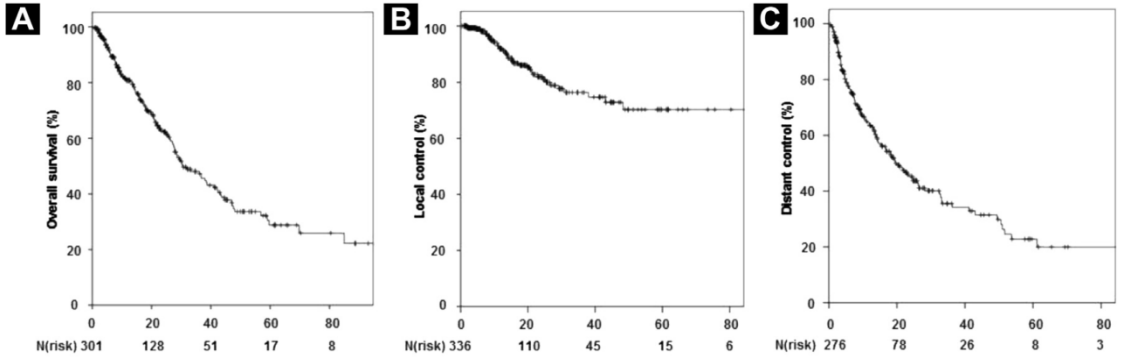
Metastases	No. Metastases	All Pulmonary Metastases (A)	Patients Without Early Progression (B)	Patients With Early Progression (C)	*P* Value (Comparison Group A vs. B + C)	*P* Value (Comparison Group B vs. C)
Single fraction dose (PTV encompassing), (range) Gy	336	12.0 (3.3-30.5)	12.5 (4.3-30.2)	15.0 (3.3-30.2)	.835	.116
BED at isocenter (range), Gy	336	128.2 (37.5-323.4)	118.2 (50.7-173.1)	117.0 (54.0-189.0)	.120	.833
BED at PTV periphery (range), Gy	336	87.5 (37.5-165.3)	84.4 (37.5-151.2)	85.4 (45.9-161.7)	.346	.939
Dose inhomogeneity (PTV periphery dose/maximum dose), (range) %	336	73.5 (50.0-100.0)	80 (60.0-100.0)	80 (50.0-100.0)	.336	.244
No. SBRT fractions (range)	336	3 (1-12)	3 (1-10)	3 (1-12)	.448	.092

Ergebnisse

Table 4 Multivariate Analysis of Factors Influencing Overall Survival, Local Control, and Distant Control

Factors	Overall Survival			Local Control			Distant Control		
	HR	95% CI	*P*	HR	95% CI	*P*	HR	95% CI	*P*
Age, y	1.027	1.004-1.050	**.019**						
Gender (female ref.)							1.487	1.046-2.116	**.027**
BED at PTV isocenter, Gy				0.989	0.979-0.999	**.037**			
Histologic subtype (adenocarcinoma ref.)	0.667	0.466-0.956	**.028**	0.526	0.280-0.988	**.046**			
Time to metastasis (metachronous ref.)				0.428	0.167-1.093	.076			
No. metastatic organs (multiple ref.)	2.360	1.574-3.537	**<.001**				2.690	1.851-3.909	**<.001**

The variables histologic subtype and time to metastatis, as well as number of metastatic organs, were analyzed as categorical variables, whereas the other variables were taken as continuous variables for analysis.
Significant *P* values are marked in bold.
Abbreviations: BED = biological effective dose; CI = confidence interval; HR = hazard ratio; PTV = planning target volume; ref = reference; SBRT = stereotactic body radiotherapy.



Vergleichbar gutes Überleben sowie gute lokale Kontrolle

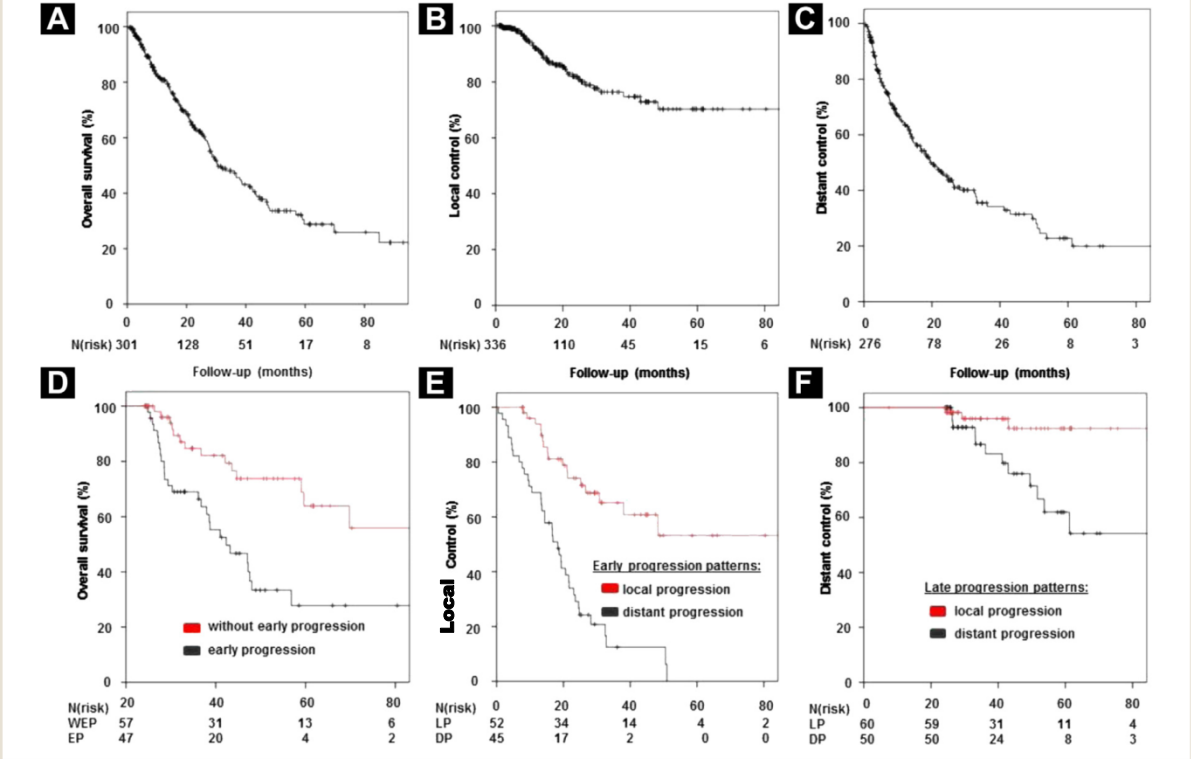
Stereotactic ablative radiotherapy versus standard of care palliative treatment in patients with oligometastatic cancers (SABR-COMET): a randomised, phase 2, open-label trial

David A Palma, Robert Olson, Stephen Harrow, Stewart Gaede, Alexander V Louie, Cornelis Haasbeek, Liam Mulroy, Michael Lock, George B Rodrigues, Brian P Yaremko, Devin Schellenberg, Belal Ahmad, Gwendolyn Griffioen, Sashendra Senthi, Anand Swaminath, Neil Kopek, Mitchell Liu, Karen Moore, Suzanne Currie, Glenn S Bauman, Andrew Warner, Suresh Senan

original report

Local Consolidative Therapy Vs. Maintenance Therapy or Observation for Patients With Oligometastatic Non–Small-Cell Lung Cancer: Long-Term Results of a Multi-Institutional, Phase II, Randomized Study

Daniel R. Gomez, MD[1]; Chad Tang, MD[1]; Jianjun Zhang, MD, PhD[1]; George R. Blumenschein Jr, MD[1]; Mike Hernandez, MS[1]; J. Jack Lee, PhD[1]; Rong Ye, MS[1]; David A. Palma, MD, PhD[2]; Alexander V. Louie, PhD, MSc[2]; D. Ross Camidge, MD, PhD[3]; Robert C. Doebele, MD, PhD[3]; Ferdinandos Skoulidis, MD, PhD[1]; Laurie E. Gaspar, MD[3]; James W. Welsh, MD[1]; Don L. Gibbons, MD[1]; Jose A. Karam, MD[1]; Brian D. Kavanagh, MD, MPH[3]; Anne S. Tsao, MD[1]; Boris Sepesi, MD[1]; Stephen G. Swisher, MD[1]; and John V. Heymach, MD, PhD[1]



Vergleich der Patienten mit früher (ersten 24 Monate) vs. später Progression:

Dominat failure pattern: distant with a continuous high risk for many years

Kombination der SBRT von Oligometastasen mit Systemtherapie

VOLUME 32 · NUMBER 34 · DECEMBER 1 2014

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Phase II Trial of Stereotactic Body Radiation Therapy Combined With Erlotinib for Patients With Limited but Progressive Metastatic Non–Small-Cell Lung Cancer

Puneeth Iyengar, Brian D. Kavanagh, Zabi Wardak, Irma Smith, Chul Ahn, David E. Gerber, Jonathan Dowell, Randall Hughes, Ramzi Abdulrahman, D. Ross Camidge, Laurie E. Gaspar, Robert C. Doebele, Paul A. Bunn, Hak Choy, and Robert Timmerman

ORIGINAL ARTICLE

IASLC

Consolidative Local Ablative Therapy Improves the Survival of Patients With Synchronous Oligometastatic NSCLC Harboring EGFR Activating Mutation Treated With First-Line EGFR-TKIs

Qinghua Xu, MD,[a] Fei Zhou, MD,[b] Hui Liu, MD,[a] Tao Jiang, MD,[b] Xuefei Li, PhD,[c] Yaping Xu, MD,[a] Caicun Zhou, MD, PhD[b,c,*]

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Research

JAMA Oncology | Original Investigation

Effect of Pembrolizumab After Stereotactic Body Radiotherapy vs Pembrolizumab Alone on Tumor Response in Patients With Advanced Non-Small Cell Lung Cancer

Results of the PEMBRO-RT Phase 2 Randomized Clinical Trial

Willemijn S. M. E. Theelen, MD; Heike M. U. Peulen, MD, PhD; Ferry Lalezari, MD; Vincent van der Noort, PhD; Jeltje F. de Vries, PhD; Joachim G. J. V. Aerts, MD, PhD; Daphne W. Dumoulin, MD; Idris Bahce, MD, PhD; Anna-Larissa N. Niemeijer, MD; Adrianus J. de Langen, MD, PhD; Kim Monkhorst, MD, PhD; Paul Baas, MD, PhD

Research

JAMA Oncology | Original Investigation

Pembrolizumab After Completion of Locally Ablative Therapy for Oligometastatic Non-Small Cell Lung Cancer

A Phase 2 Trial

Joshua M. Bauml, MD; Rosemarie Mick, MS; Christine Ciunci, MD, MSCE; Charu Aggarwal, MD, MPH; Christiana Davis, MD; Tracey Evans, MD; Charuhas Deshpande, MD; Linda Miller, RN; Pooja Patel, BA, BS; Evan Alley, MD, PhD; Christina Knepley, CRNP; Faith Mutale, CRNP; Roger B. Cohen, MD; Corey J. Langer, MD

Zusammenfassung

- **Multi-institutionelle Analyse von 301 Patienten mit 336 Lungenmetastasen, welche mittels pulmonaler SBRT behandelt wurden**
- **Vergleichbar gutes Überleben und gute lokale Kontrolle bei geringer Toxizität**
- **Therapieversagen vor allem distant**
- **Das Risiko für die Entwicklung distanter Metastasen bleibt über Jahre hinweg sehr hoch und erreicht kein Plateau**
- **Daher werden dringend klinische Studien zur Therapie des oligometastasierten NSCLC benötigt, welche eine lokale Therapie mit eienr zusätzlichen Systemtherapie (v.a. Immuntherapie) kombinieren!**

Vielen Dank an alle teilnehmenden Zentren!

Fragen…..?