

Efficacy and safety of Cyberknife radiosurgery in elderly with brain metastases

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Reducing Intensity of Treatment

Use of Stereotactic Radiosurgery in Elderly and Very Elderly Patients With Brain Metastases to Limit Toxicity Associated With Whole Brain Radiation Therapy



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Methods

Retrospective analysis 2011-11/2018

Patient characteristics

Treatment efficacy

Possible factors influencing therapy effect

Complications

Results

Patient Characteristics

N=97 patients, 233 lesions

Mean age: 73.2 \pm 5.8 years (range: 65-87), 13% >80 years

Sex ratio: male 58%, female 42%

Other treatments:

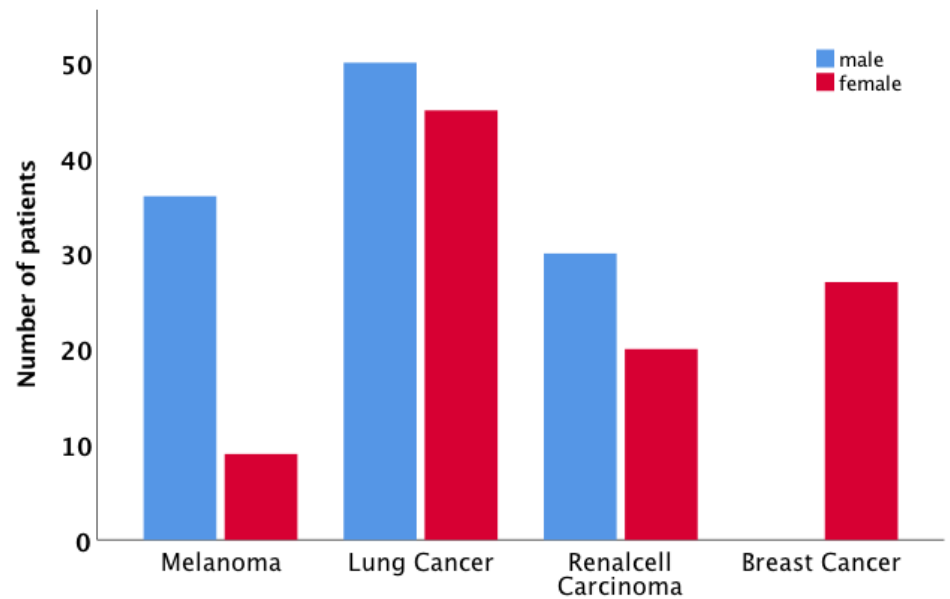
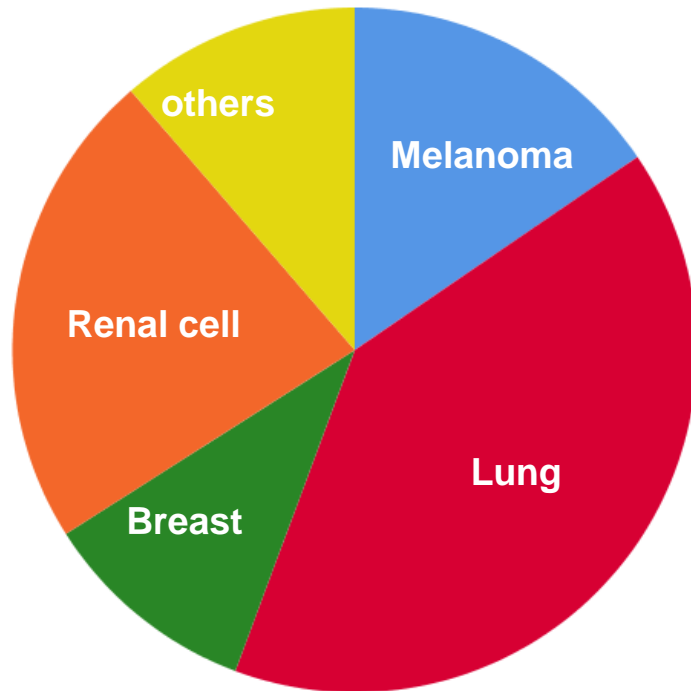
29.9% received a tumor resection prior to SRS

A systemic treatment was performed in 75.3% of the patients

14.4% WBRT before or after CK (71.4% vs. 21.4%, respectively)

Results

Tumor Characteristics



Results

Treatment Characteristics

92.3% by a single fraction

Median PTV

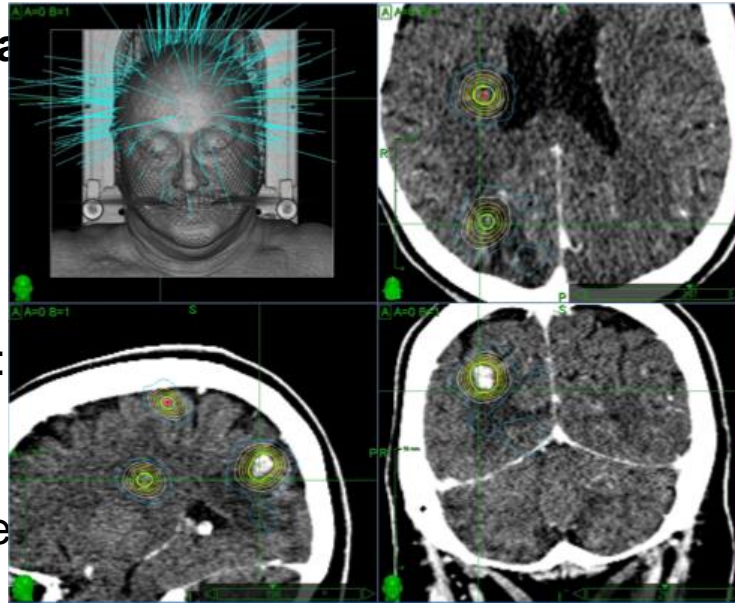
1.7 ± 2.7 cm³ (range: 0.1 - 14.5 cm³)

Prescribed Dose

Median 19 Gy (range: 10 - 30 Gy)

Follow up

a median follow-up period of 12 months (range: 3 - 36 months).



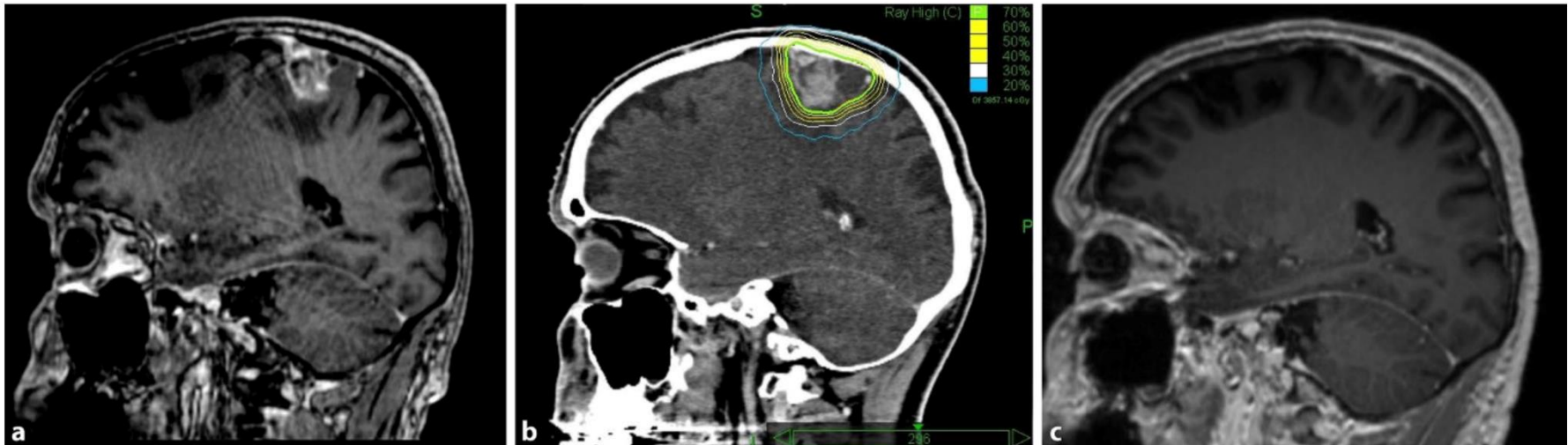
In 20.6% multiple lesions to 8 lesions in one session

14.4% Re-treatments by CK to four times

Results

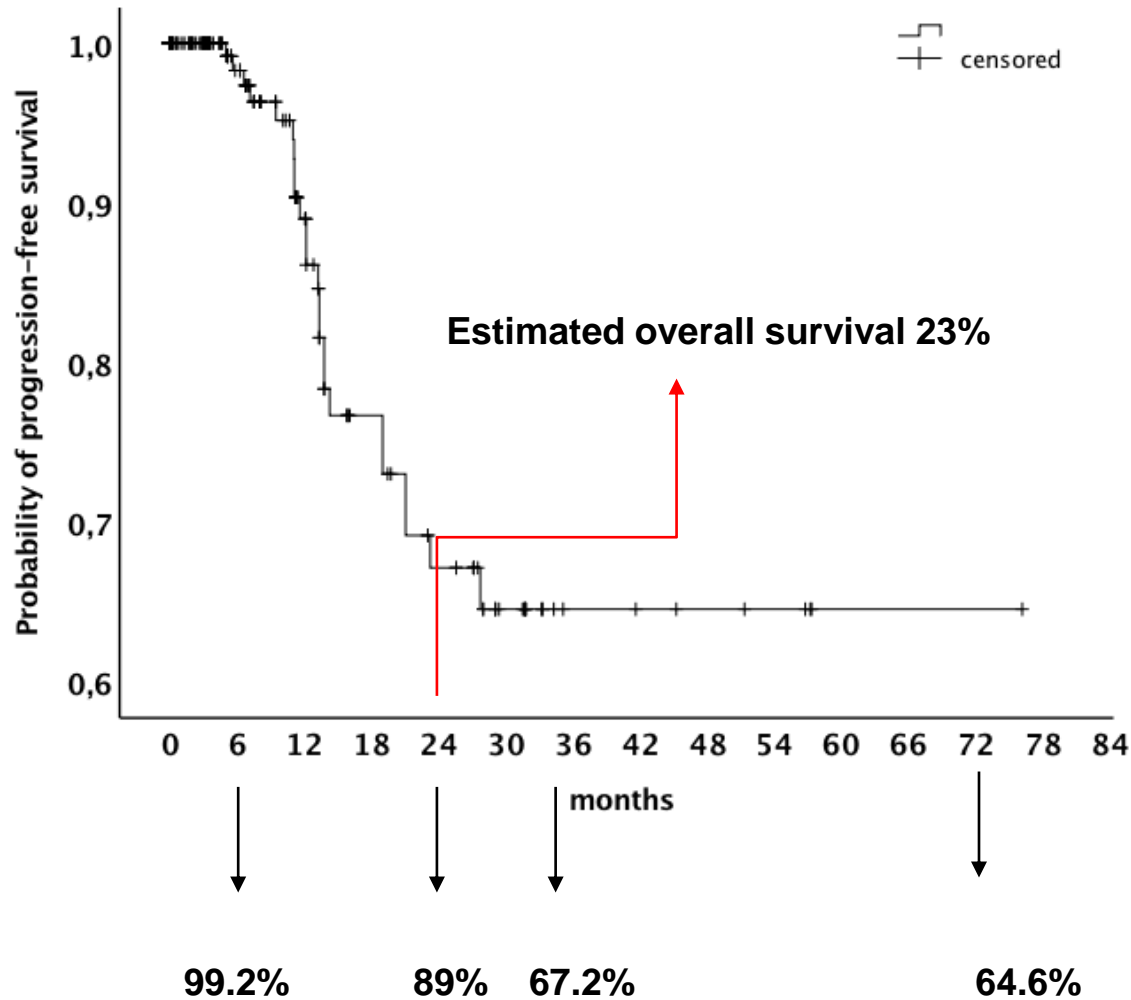
Efficacy: good local disease control

	Number of lesions	%
Complete remission	38	20.6%
Partial remission	84	45.6%
No change	38	20.6%
Progressive disease	24	13%



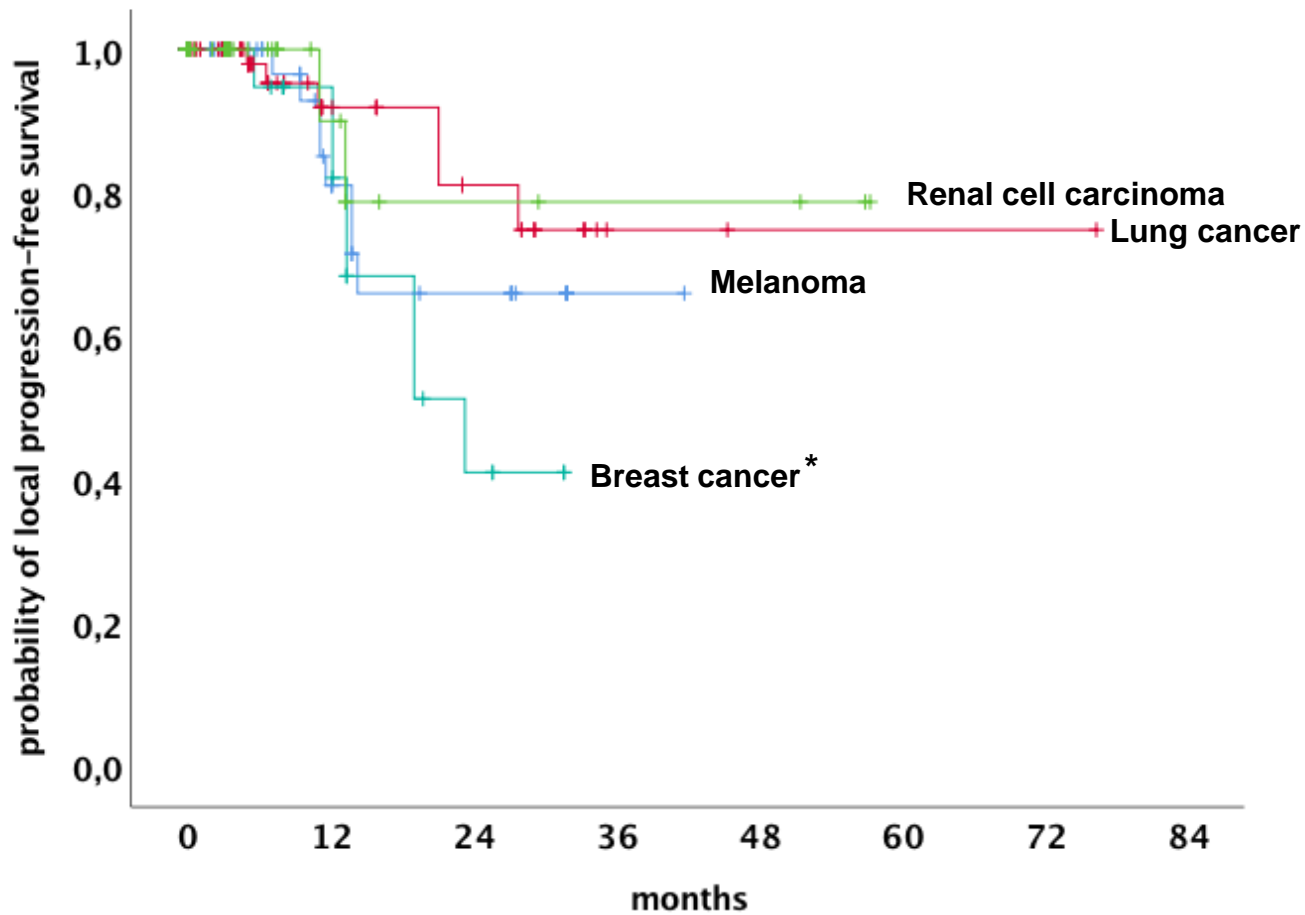
Results

Efficacy: good local disease control



Results

Local disease control divided in different entities

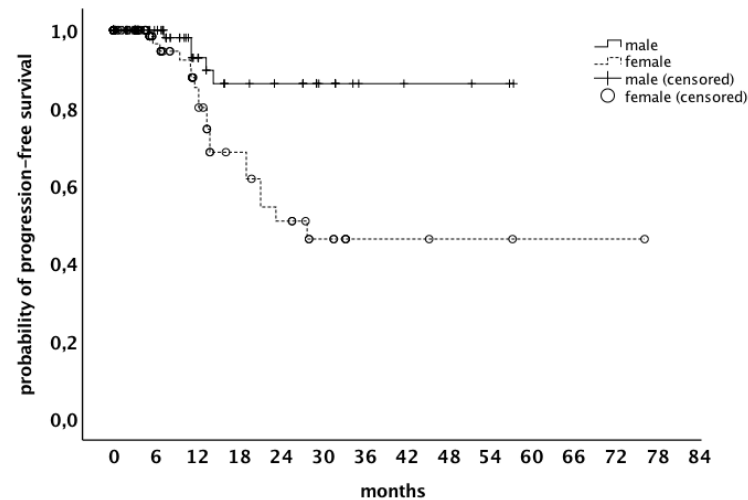


* $p < 0.05$ breast cancer vs. lung

Results

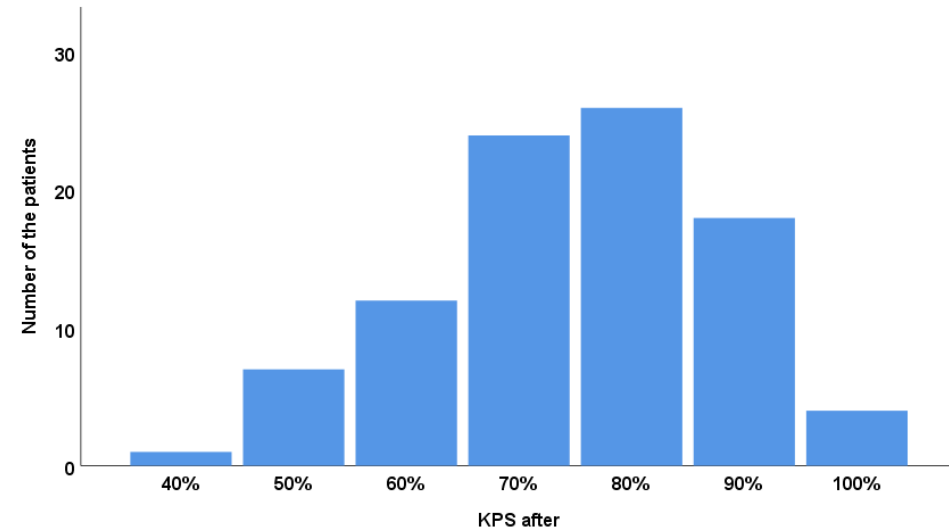
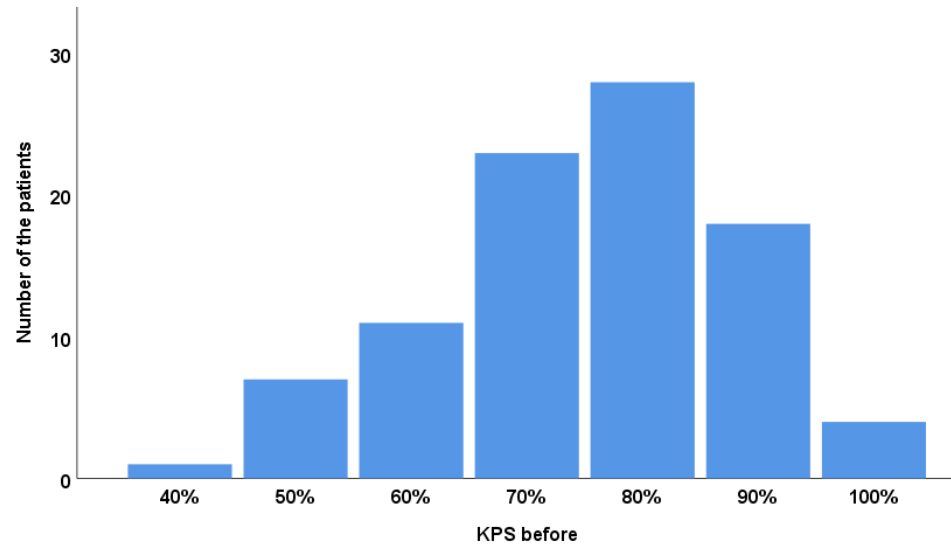
Risk factors for tumor progress

	Univariate Analyses			Multivariate Analysis		
	HR	95% CI	p-value	HR	95% CI	p-value
Age	1.134	1.134-1.045	.002	1.132	1.026-1.248	.014
Sex	.250	.093-.671	.006	.275	.102-.743	.011
PTV	1.185	1.050-1.338	.006	1.131	1.000-1.279	.051
Min Dose	.940	.790-1.119	.489			
Mean Dose	.950	.758-1.191	.658			
Maximal Dose	.967	.801-1.167	.725			
Prescribed Dose	.882	.637-1.221	.450			



Results

Safety: KPS remained stable in 97.9%, whilst only 1% deteriorated by ≥ 10 points.



Safety: 1% new neurological deficit

Conclusion

CK SRS offers good local control

Well tolerated also in elderly

Further studies needed