KKR Qualitätskonferenz

Stereotactic Ablative Radiotherapy versus Video-Assisted Lobectomy for Stage I Non-small-cell Lung Cancer: Study Protocol for an Emulated Target Trial.

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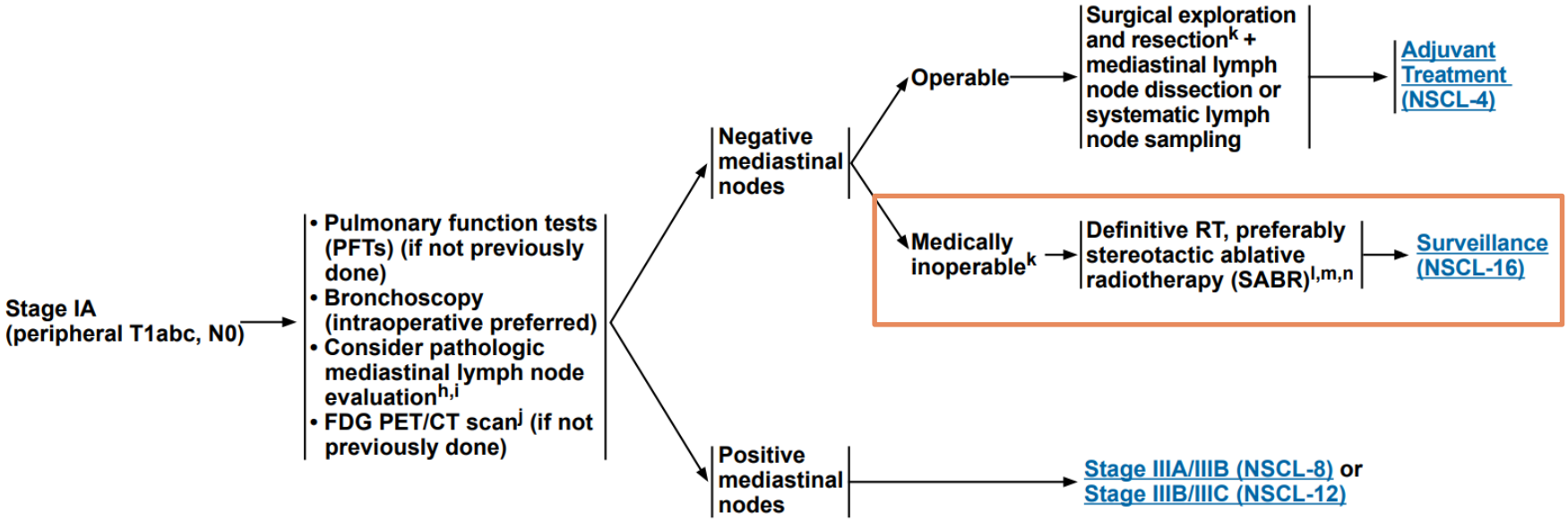


	IA	IB	IIA	IIB	IIIA	IIIB	IIIC	IVA	IVB	Gesamt
Operative Primärfälle anatomische Lungenresektionen	2.067 (70,55%)	907 (76,09%)	346 (74,25%)	1.187 (71,12%)	1.317 (50,08%)	444 (21,57%)	25 (3,12%)	295 (6,89%)	82 (1,54%)	6.670
Nicht-operative Primärfälle	863 (29,45%)	285 (23,91%)	120 (25,75%)	482 (28,88%)	1.313 (49,92%)	1.614 (78,43%)	777 (96,88%)	3.984 (93,11%)	5.256 (98,46%)	14.694
Primärfälle gesamt	2.930 (13,71%)	1.192 (5,58%)	466 (2,18%)	1.669 (7,81%)	2.630 (12,31%)	2.058 (9,63%)	802 (3,75%)	4.279 (20,03%)	5.338 (24,99%)	21.364 (100%)

DKG. Kennzahlenauswertung 2020– Jahresbericht der zertifizierten Lungenkrebszentren 2020 (Auditjahr 2019 / Kennzahlen 2018). https://www.krebsgesellschaft.de/jahresberichte.html, (zuletzt aufgerufen Januar 2021).

Einleitung

ORIGINAL ARTICLE
LUNG CANCER

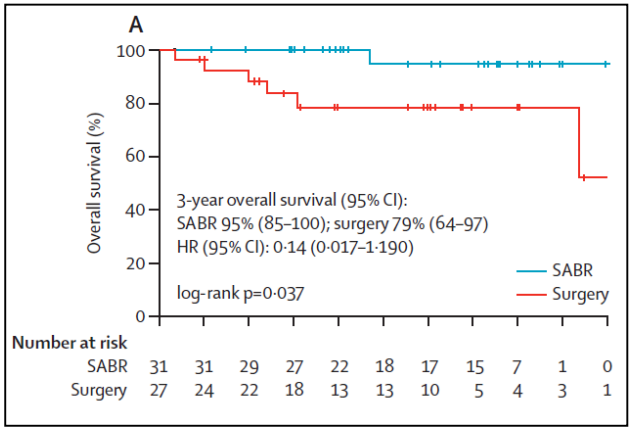
SABRTooth: a randomised controlled feasibility study of stereotactic ablative radiotherapy (SABR) with surgery in patients with peripheral stage I nonsmall cell lung cancer considered to be at higher risk of complications from surgical resection

Kevin N. Franks[1,2,13], Lucy McParland[3,13], Joanne Webster[3], David R. Baldwin[4], David Sebag-Montefiore[1,2,3], Matthew Evison[5], Richard Booton[5], Corinne Faivre-Finn[6], Babu Naidu[7], Jonathan Ferguson[8], Clive Peedell[8], Matthew E.J. Callister[9], Martyn Kennedy[9], Jenny Hewison[10], Janine Bestall[10], Walter M. Gregory[3], Peter Hall[11], Fiona Collinson[3], Catherine Olivier[3], Rachel Naylor[3], Sue Bell[3], Peter Allen[12], Andrew Sloss[12] and Michael Snee[1]

Stereotactic ablative radiotherapy versus lobectomy for operable stage I non-small-cell lung cancer: a pooled analysis of two randomised trials

Joe Y Chang, Suresh Senan*, Marinus A Paul, Reza J Mehran, Alexander V Louie, Peter Balter, Harry J M Groen, Stephen E McRae, Joachim Widder, Lei Feng, Ben E E M van den Borne, Mark F Munsell, Coen Hurkmans, Donald A Berry, Erik van Werkhoven, John J Kresl, Anne-Marie Dingemans, Omar Dawood, Cornelis J A Haasbeek, Larry S Carpenter, Katrien De Jaeger, Ritsuko Komaki, Ben J Slotman, Egbert F Smit†, Jack A Roth†*

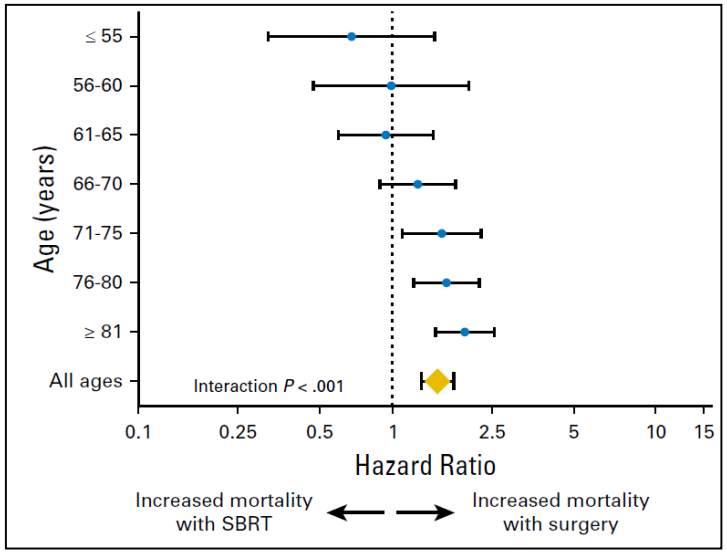
- The UK-based SABRTooth trial was found to be infeasible, while slow accrual hindered the progress of the STARS and ROESEL trials.
- Despite these challenges, a pooled analysis of the 58 patients recruited from the STARS and ROESEL trials was conducted.



JOURNAL OF CLINICAL ONCOLOGY ORIGINAL REPORT

Post-Treatment Mortality After Surgery and Stereotactic Body Radiotherapy for Early-Stage Non–Small-Cell Lung Cancer

William A. Stokes, Michael R. Bronsert, Robert A. Meguid, Matthew G. Blum, Bernard L. Jones, Matthew Koshy, David J. Sher, Alexander V. Louie, David A. Palma, Suresh Senan, Laurie E. Gaspar, Brian D. Kavanagh, and Chad G. Rusthoven



- Possible reasons for conflicting results and limitations:
- Small sample size.
- Unmeasured confounders.
- Unclear definitions of VATS and SABR.
- Immortal-time bias.

Conclusions: For patients with early stage non-small cell lung cancer who are eligible for either treatment, better overall survivals were seen after surgery compared to SABR. However, lung cancer-specific survival was similar for both treatments. Prospective clinical trials are preferred to propensity analyses in evaluating the nature of non-cancer related mortality post-SABR.

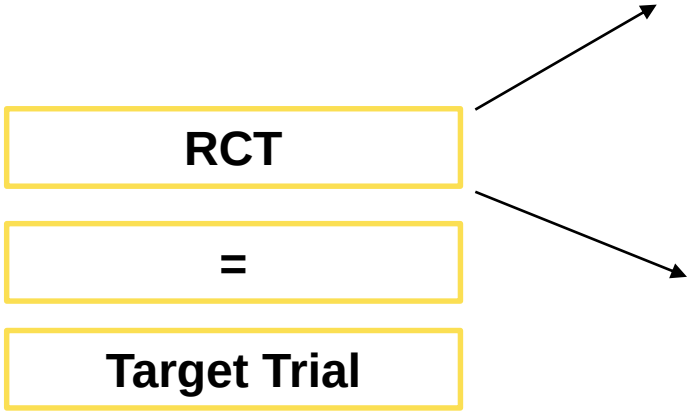
Hanbo et al 2017, Red Journal

Research Question

What is the causal effect of receiving SABR, in comparison to VATS, within three months from diagnosis, on 1-year and 5-year overall and cause-specific survival of operable early stage non-small cell lung cancer patients?

Components of Target Trial

1. Eligibility criteria.
2. Treatment strategies.
3. Assignment procedures.
4. Follow-up period.
5. Outcome.
6. Causal contrasts of interest.
7. Analysis plan.



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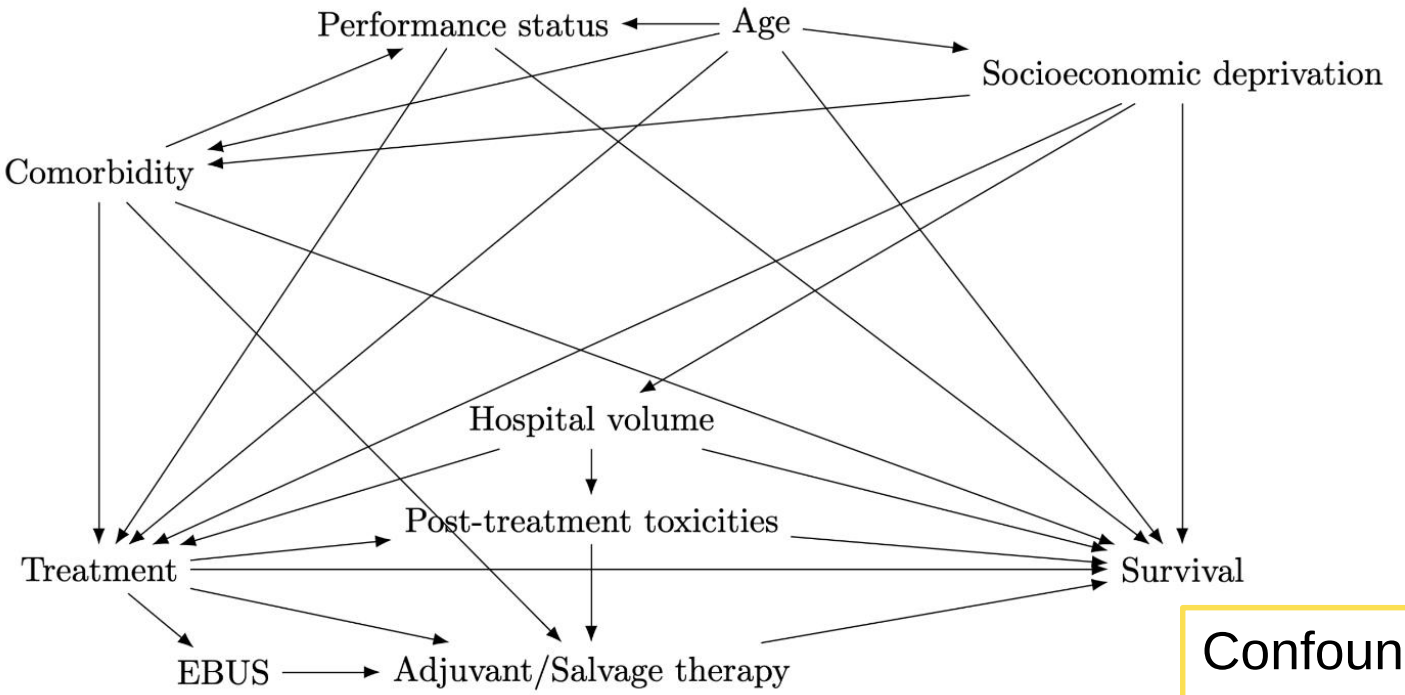
Eligibility criteria

1. STARS and ROSEL as reference.
2. A Directed Acyclic Graph (DAG) → causal relationship between the exposure (SABR vs VATS) and the outcome (survival).
3. Positivity assumption: the probability of deviating from the protocol is non-zero at all follow-up times of the grace period and for each patient.



Confounders

- Age.
- Comorbidity.
- Performance Status.
- Socioeconomic deprivation.
- Hospital volume.

Eligibility criteria

Inclusion criteria

- Age above 18.
- Non-small cell lung cancer determined histologically.
- Stage IA diagnosis defined by any combination of T1a,N0,M0 , T1b,N0,M0, and T1c, N0, M0.
- PET/CT scan is required to confirm staging and nodal involvement.
- Performance score of Karnofsky >= 60% or ECOG score <=2 before any treatment.

Eligibility criteria

Exclusion criteria

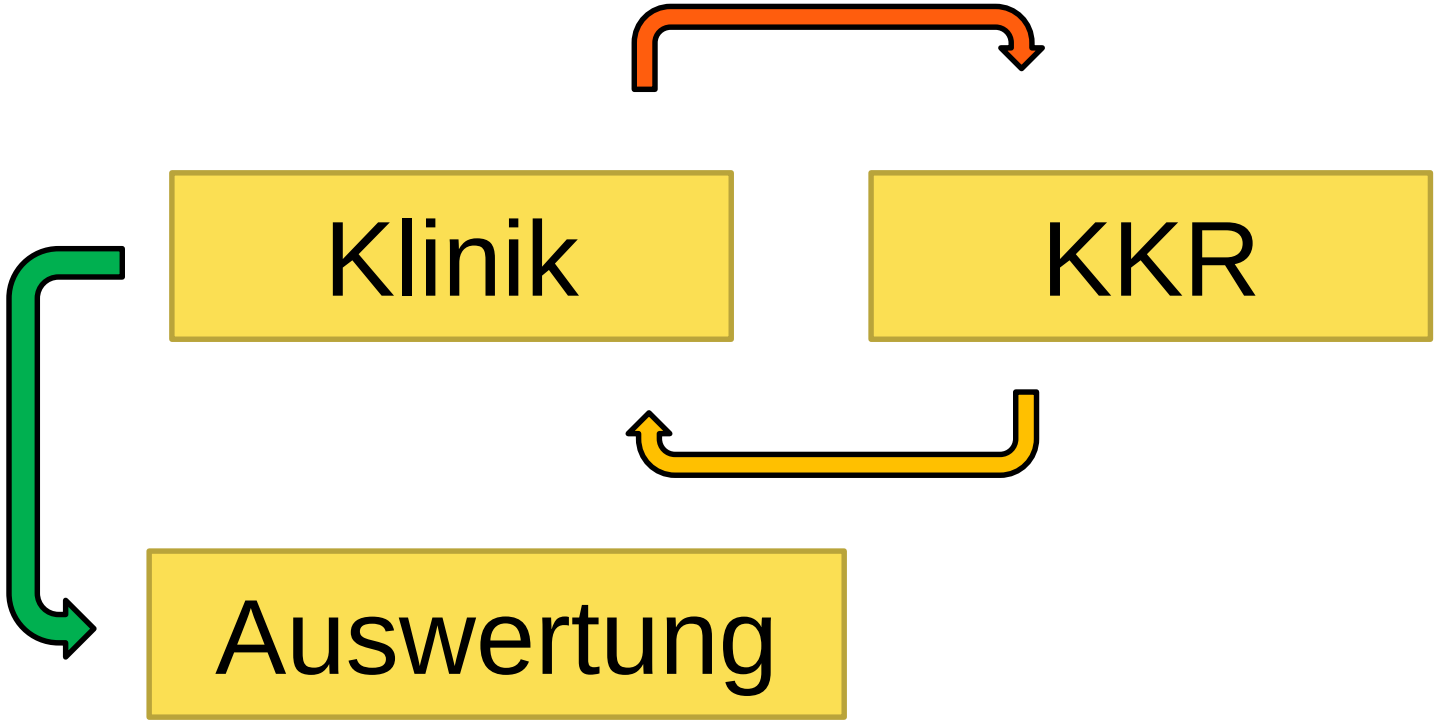
- Direct evidence of regional or distant metastases.
- Synchronous primary or prior malignancy in the past 3 years other than nonmelanomatous skin cancer or in situ cancer.
- Major surgery or previous lung/mediastinal radiotherapy within the
- past 1 year .
- Serious medical comorbidities (Charlson's comorbidity index >2) or other contraindications to SABR or VATS.

Treatment strategies

- VATS = OP code: (5-324.6 ff).
- SABR = 3 - 10 fractions AND > 5 Gy.
- 3 month grace period.

- Overall survival.
- Cancer specific survival. Recurrence-free survival.

Analysis plan



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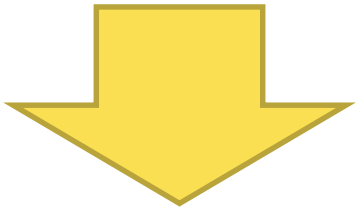
Analysis plan

- Interne Qualitätssicherung



- Randomization. Artificial censoring.
- Inverse-Probability weighting.
- Restricted mean survival times over a 1-year and 5-years window.

Cancer registry variables

Patient characteristics
- Age = Patienten_Geburtsdatum
- Sex = Patienten_Geschlecht

Tumor characteristics
- Diagnosis = Primärtumor_ICD_Code
- Date of diagnosis = Tumor_Diagnosedatum
- Histology = Morphologie_ICD_O
- Stage = TNM_T, TNM_N, TNM_M

Intervention
- VATS code = OPs code: 5-324.6 ff, OP_Intention
- SABR = ST_Applikationsart ST_Gesamtdosis ST_Einzeldosis, ST_Intention
- Treatment Dates = OP_Datum, ST_Beginn_Datum, ST_Ende_Datum, ST_Ende_Grund

Outcome
- Death = TOD, TOD_Sterbedatum, TOD_Ursache

University Hospital variables

- Diagnostic tool used
- Performance status
- Charlson's comorbidity index
- Major surgery/radiotherapy past one year
- Rationale behind treatment decision

Schlussfolgerung

→ Emulating Clinical Trials helps to get evidence from historical data

→ Conclusions comparable to „real“ RCT

Vielen Dank für die Aufmerksamkeit