What Else Happened CRC Liver Mets

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Disclosures

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- Industry:

SIRTEX Medical Inc: Phase I Trial Y90 Post HAI: Clinical CRC 2013

Angiodynamics/ Neuwave/ SOTA Medical/ HS Medical/ Perseon

BTG: EPOCH Trial

- Consultant, Advisory Boards:

- J&J/ Ethicon
- Terumo
- BTG/Boston Scientific
- SIRTEX
- Varian

cancers

MDPI

Article

Thermal Ablation versus Stereotactic Ablative Body Radiotherapy to Treat Unresectable Colorectal Liver Metastases: A Comparative Analysis from the Prospective Amsterdam CORE Registry

Sanne Nieuwenhuizen [1,*], Madelon Dijkstra [1], Robbert S. Puijk [1], Florentine E. F. Timmer [1], Irene M. Nota [1], Jip Opperman [2], Bente van den Bemd [1], Bart Geboers [1], Alette H. Ruarus [1], Evelien A. C. Schouten [1], Jan J. J. de Vries [1], Hester J. Scheffer [1], Anne M. van Geel [2], Jan Hein T. M. van Waesberghe [1], Rutger-Jan Swijnenburg [3], Kathelijn S. Versteeg [4], Birgit I. Lissenberg-Witte [5], M. Petrousjka van den Tol [4], Cornelis J. A. Haasbeek [6] and Martijn R. Meijerink [1]

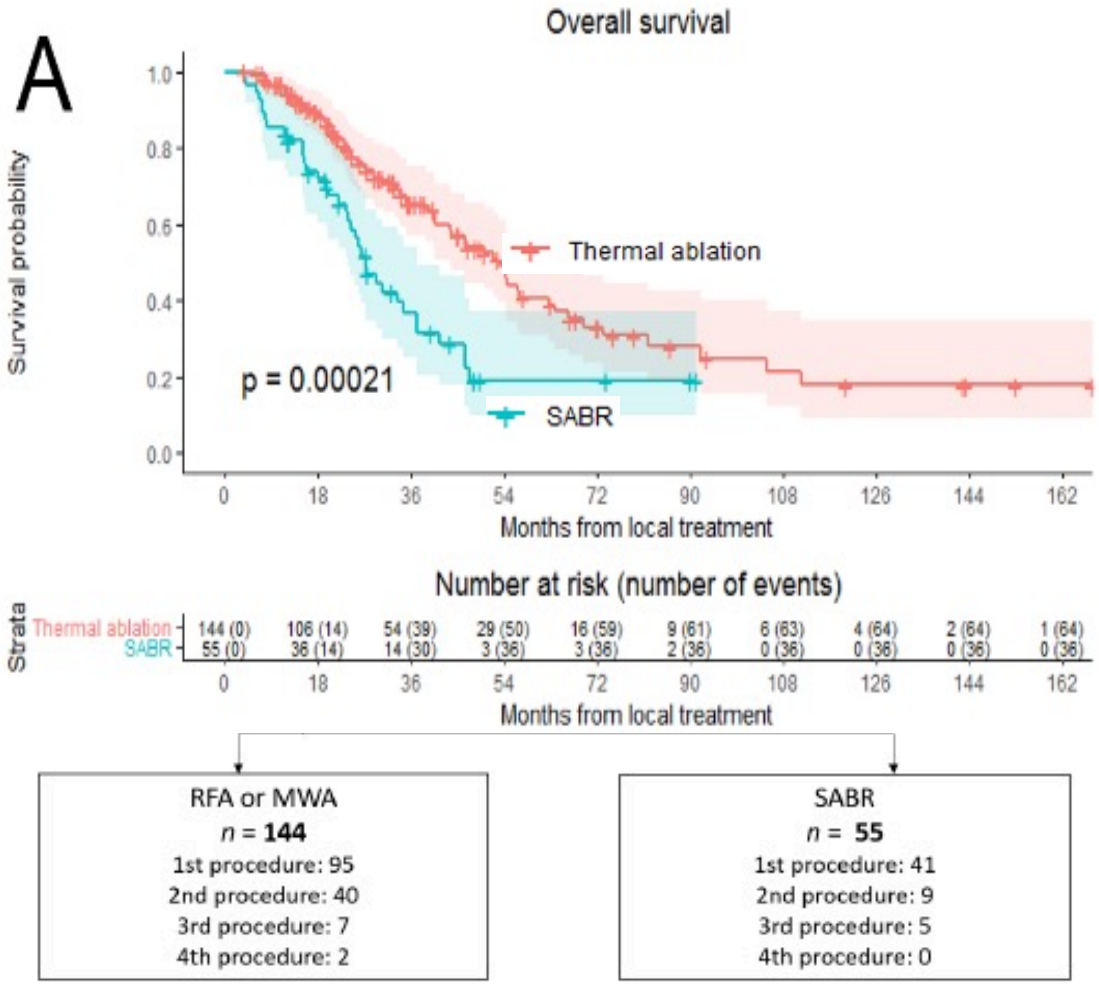

Figure 1. Flowchart of selected patients from the prospective Amsterdam Colorectal Liver Metastases Registry (AmCORE)

cancers

MDPI

Article

Thermal Ablation versus Stereotactic Ablative Body Radiotherapy to Treat Unresectable Colorectal Liver Metastases: A Comparative Analysis from the Prospective Amsterdam CORE Registry

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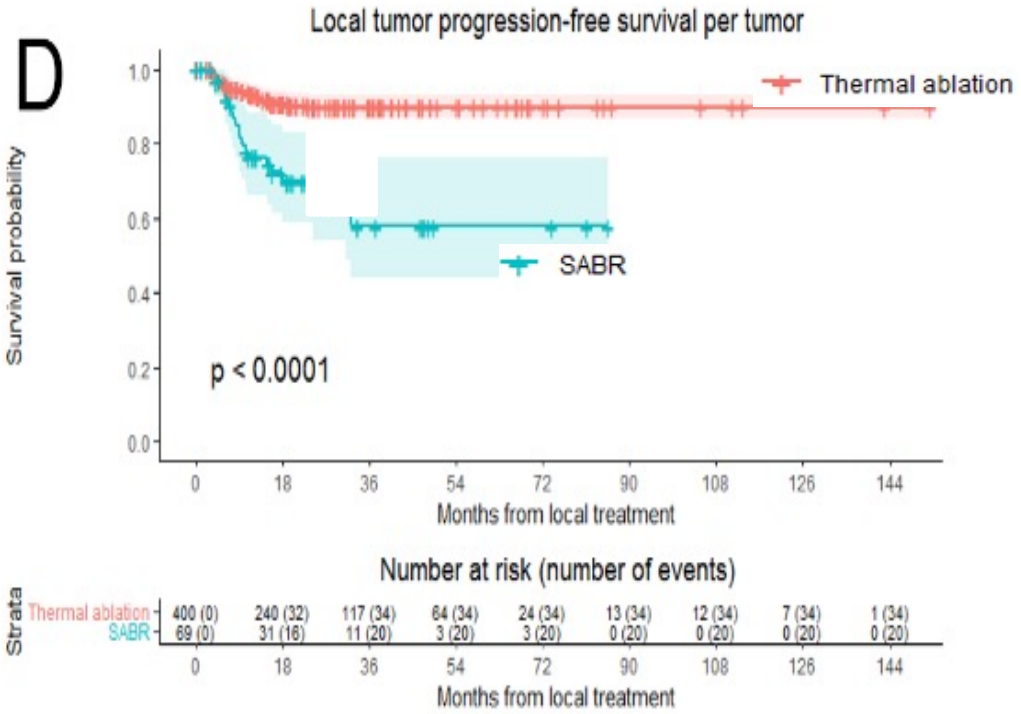
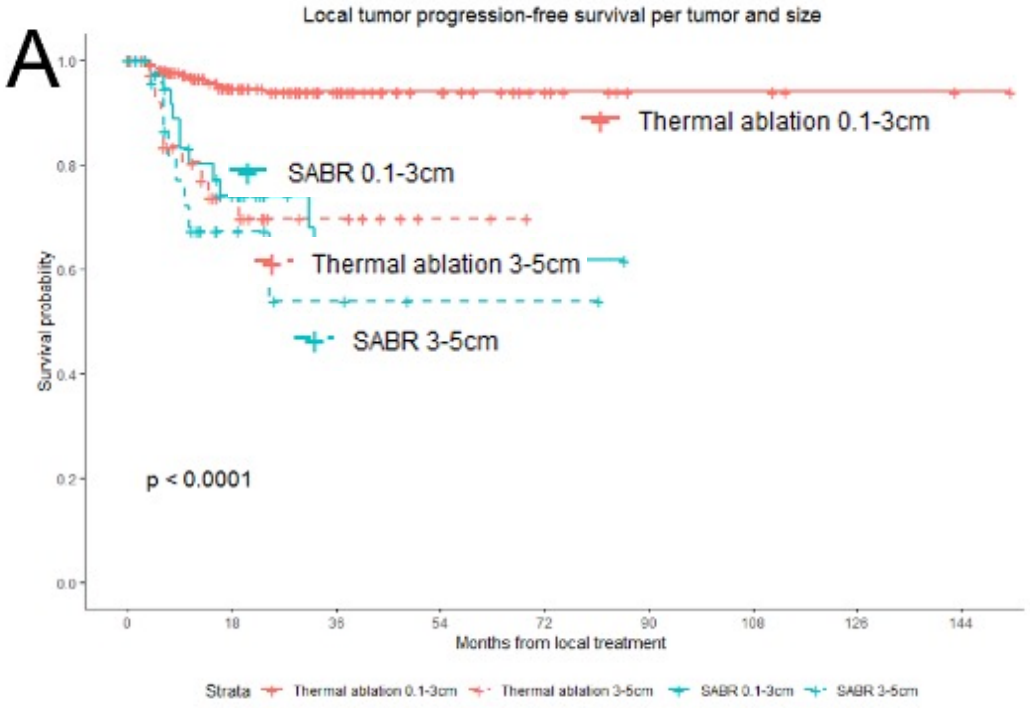
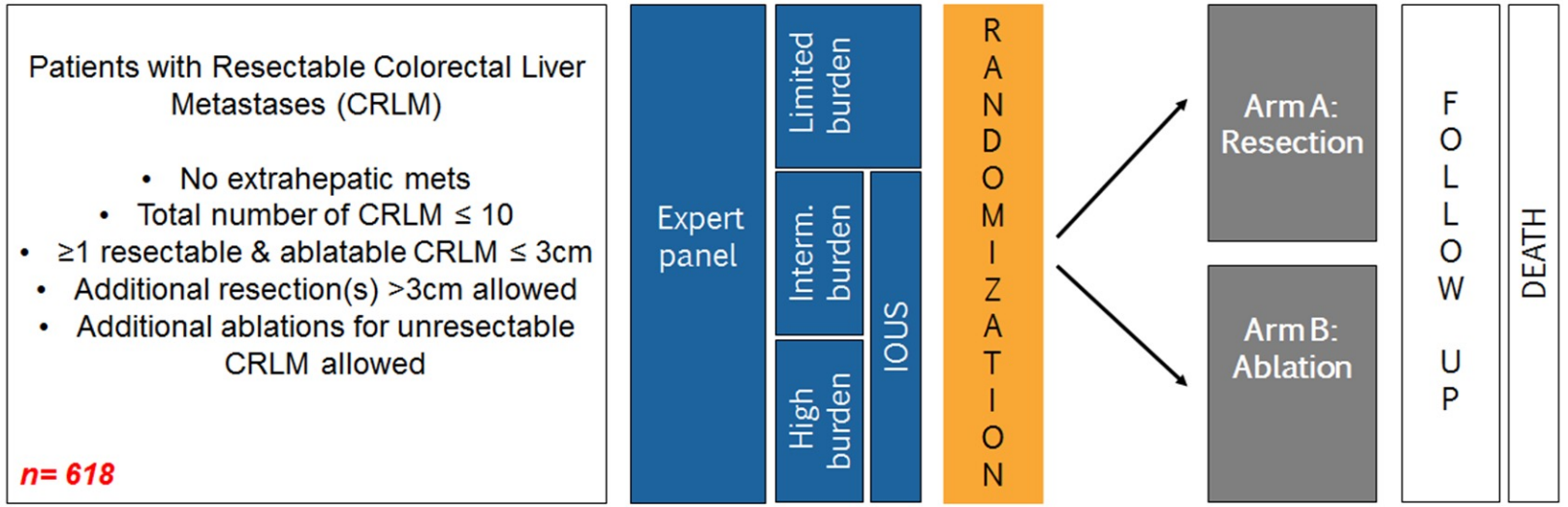




COLLISION
Colorectal Liver Metastases:
surgery vs thermal ablation



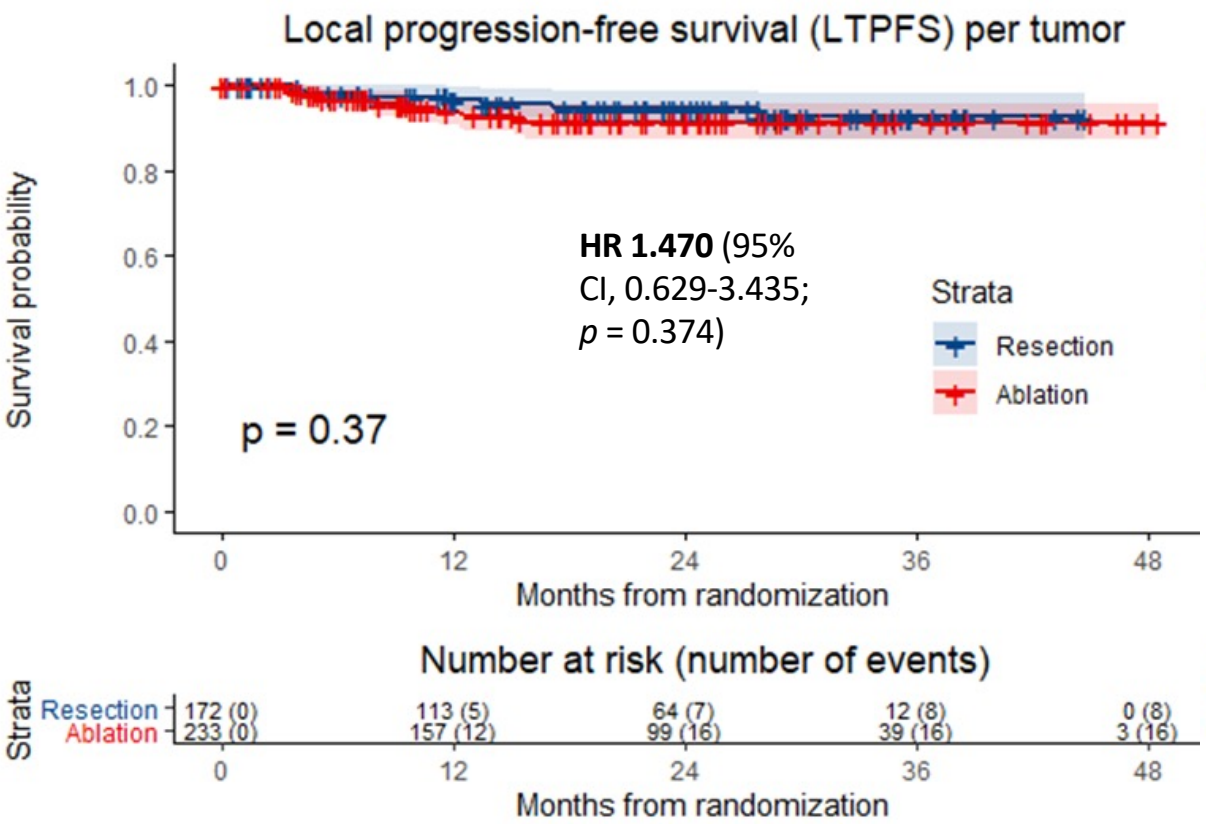
Phase III multicenter partially single-blind randomized controlled trial to prove/disprove non-inferiority of thermal ablation compared to partial hepatectomy for small resectable colorectal liver metastases

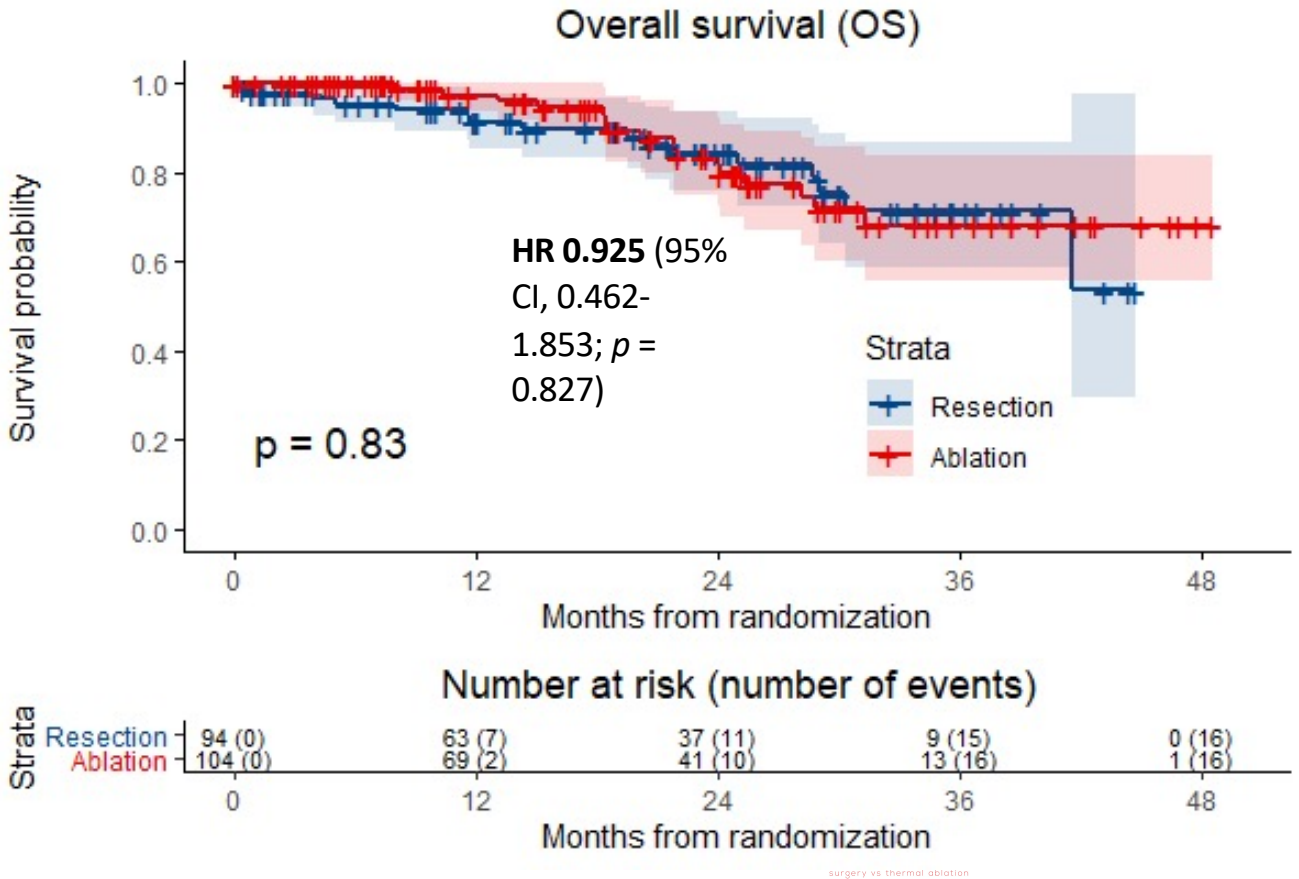
- Approach (percutaneous, laparoscopic or open) according to local expertise
- If limited disease burden (max 3 CRLM ≤ 3cm) consider percutaneous / laparoscopic approach
- If intermediate or high disease burden randomize after eligibility check (after IOUS) during OR (single-blind)

CIO

LOCAL TUMOR PROGRESSION FREE SURVIVAL

LTPFS





CONCLUSIONS

INTERIM ANALYSIS

When compared to surgery,

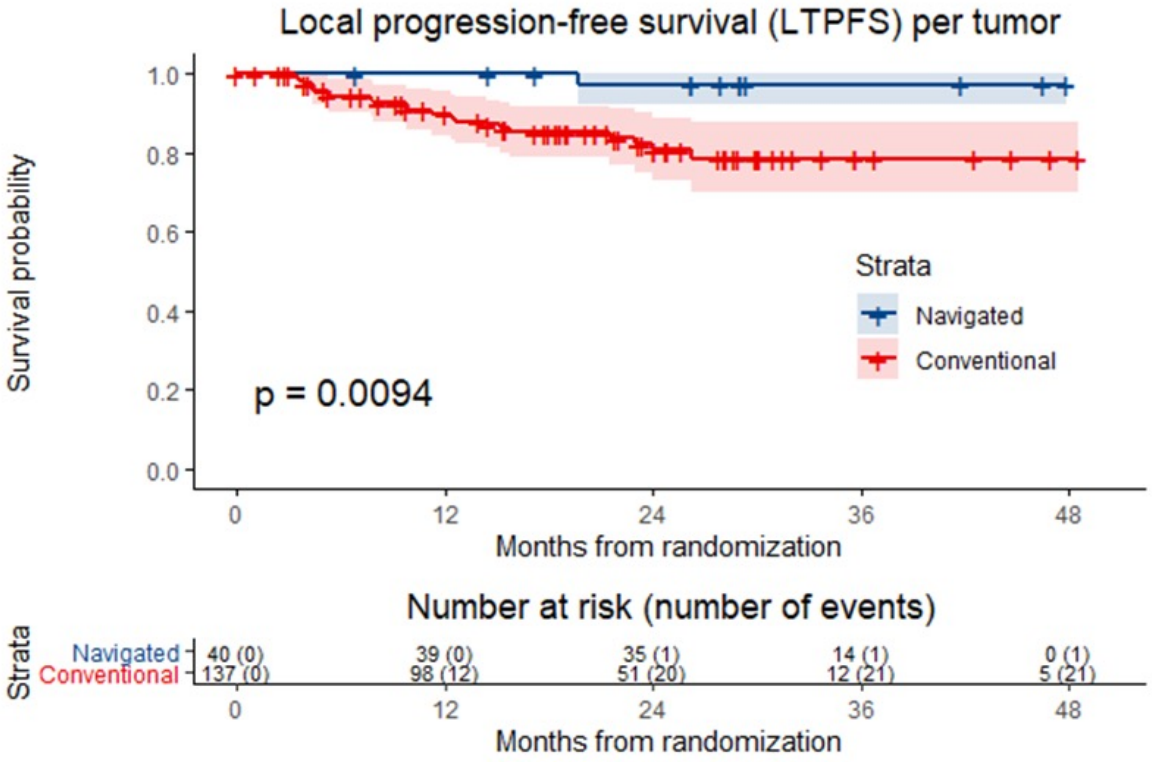
thermal ablation of small-size (0-3cm) CRLM…

- is superior regarding ***mortality and adverse events***
- significantly reduces length of ***hospital stay*** - (QoL, cost-benefit, pain scores?)
- is non-inferior r. ***local tumor progression free survival (LTPFS) & local control (LC)***
- *seems* (88.3%) non-inferior regarding ***overall survival (OS)***

COLLISION
Colorectal Liver Metastases: surgery vs thermal ablation

LOCAL TUMOR PROGRESSION FREE SURVIVAL

LTPFS PERCUTANEOUS ABLATION: NAVIGATED & CONFIRMED MARGINS vs CONVENTIONAL



HR 9.748 (95% CI, 1.303-72.91; *p* = 0.0094)

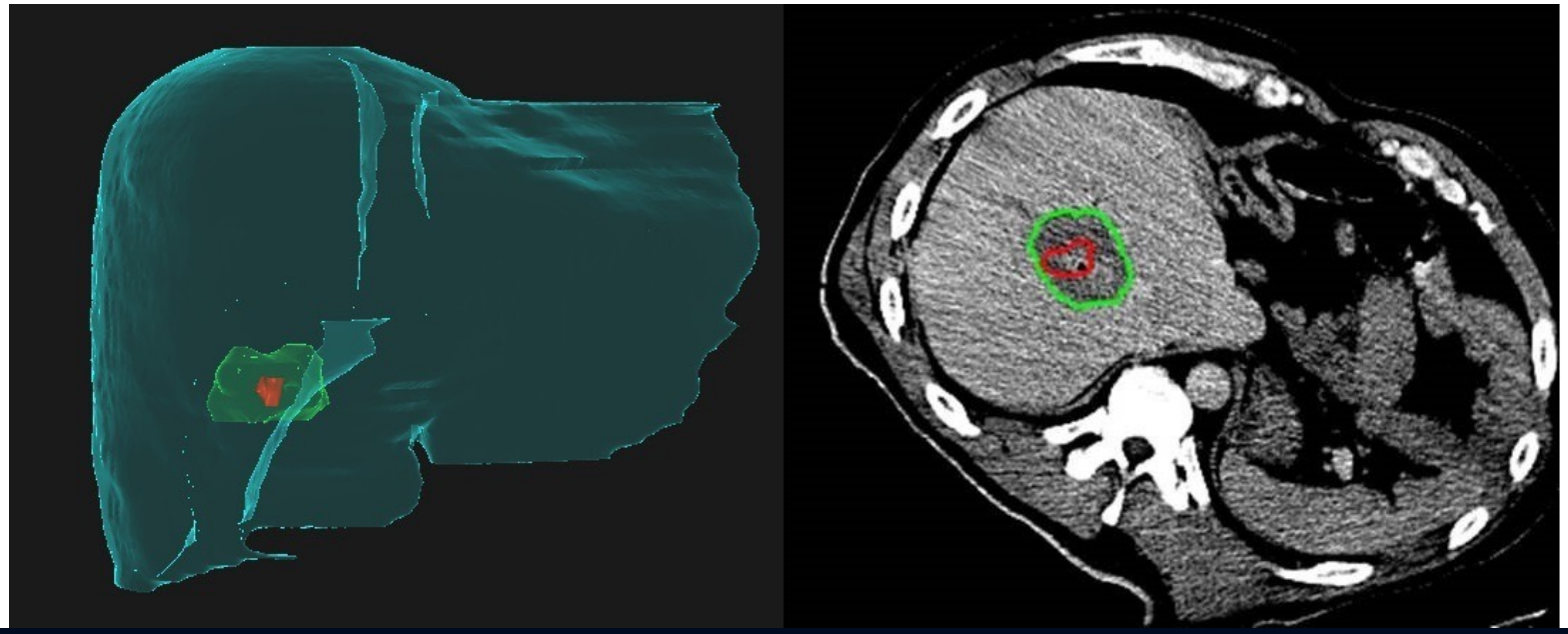
COLLISION
Colorectal Liver Metastases: surgery vs thermal ablation

InterventionalNews

Ablation 2.0: Improved precision as interventionalists approach A0

18th March 2021

Intra-ablation feedback: software using biomechanical deformable registration volumetric imaging. Image courtesy of Bruno Odisio.



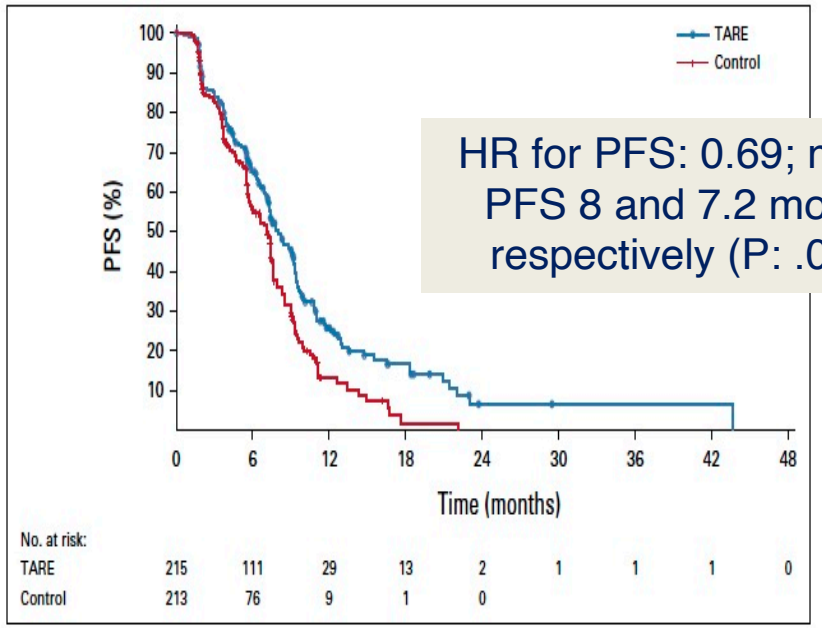
Ablation experts confirm the importance of 3D Margin Assessment

ACCLAIM : MWA of CLM mandates 3D confirmation of MM > 5mm

Radioembolization With Chemotherapy for Colorectal Liver Metastases: A Randomized, Open-Label, International, Multicenter, Phase III Trial

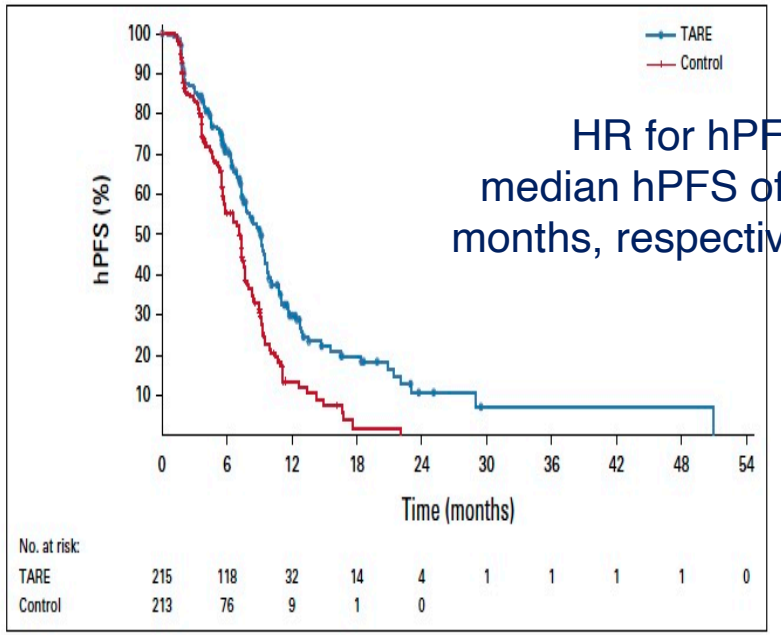
Mary F. Mulcahy, MD[1]; Armeen Mahvash, MD[2]; Marc Pracht, MD[3]; Amir H. Montazeri, MD[4]; Steve Bandula, MD, PhD[5]; Robert C. G. Martin II, MD[6]; Ken Herrmann, MD[7]; Ewan Brown, MD[8]; Darryl Zuckerman, MD[9]; Gregory Wilson, MD[10]; Tae-You Kim, M Andrew Weaver, MD[12]; Paul Ross, MD[13]; William P. Harris, MD[14]; Janet Graham, MD[15]; Jamie Mills, MD[16]; Alfonso Yubero Esteban, M Matthew S. Johnson, MD[18]; Constantinos T. Sofocleous, MD[19]; Siddharth A. Padia, MD[20]; Robert J. Lewandowski, MD[21]; Etienne Garin, MD[22]; Philip Sinclair, PhD[23]; and Riad Salem, MD, MBA[21]; for the EPOCH Investigators

TARE plus chemotherapy: 215/ chemotherapy alone: 213



HR for PFS: 0.69; median PFS 8 and 7.2 months, respectively (P: .0013)

FIG 2. Kaplan-Meier analysis of overall PFS for TARE plus chemotherapy versus chemotherapy in the intention-to-treat population. PFS, progression-free survival; TARE, transarterial yttrium-90 radioembolization.



HR for hPFS: 0.59
median hPFS of 9.1 and 7.2 months, respectively (P: .0001)

FIG 3. Kaplan-Meier analysis of hPFS for TARE plus chemotherapy versus chemotherapy in the intention-to-treat population. hPFS, hepatic progression-free survival; TARE, transarterial yttrium-90 radioembolization.

Objective response rates 34.0% vs 21.1% (P: .0019) for TARE vs ChemoTx group, respectively.
31% protection against POD and 41% protection against Liver POD in the TARE group

MVA: independent predictors of shorter OS

- Mean TD < 100 Gy, genomic mutation, and diffuse hepatic metastatic disease
- Mean TD ≥ 100 Gy in patients with unresectable CRLM undergoing resin-based Y90 SIRT predicts OR and prolonged OS.

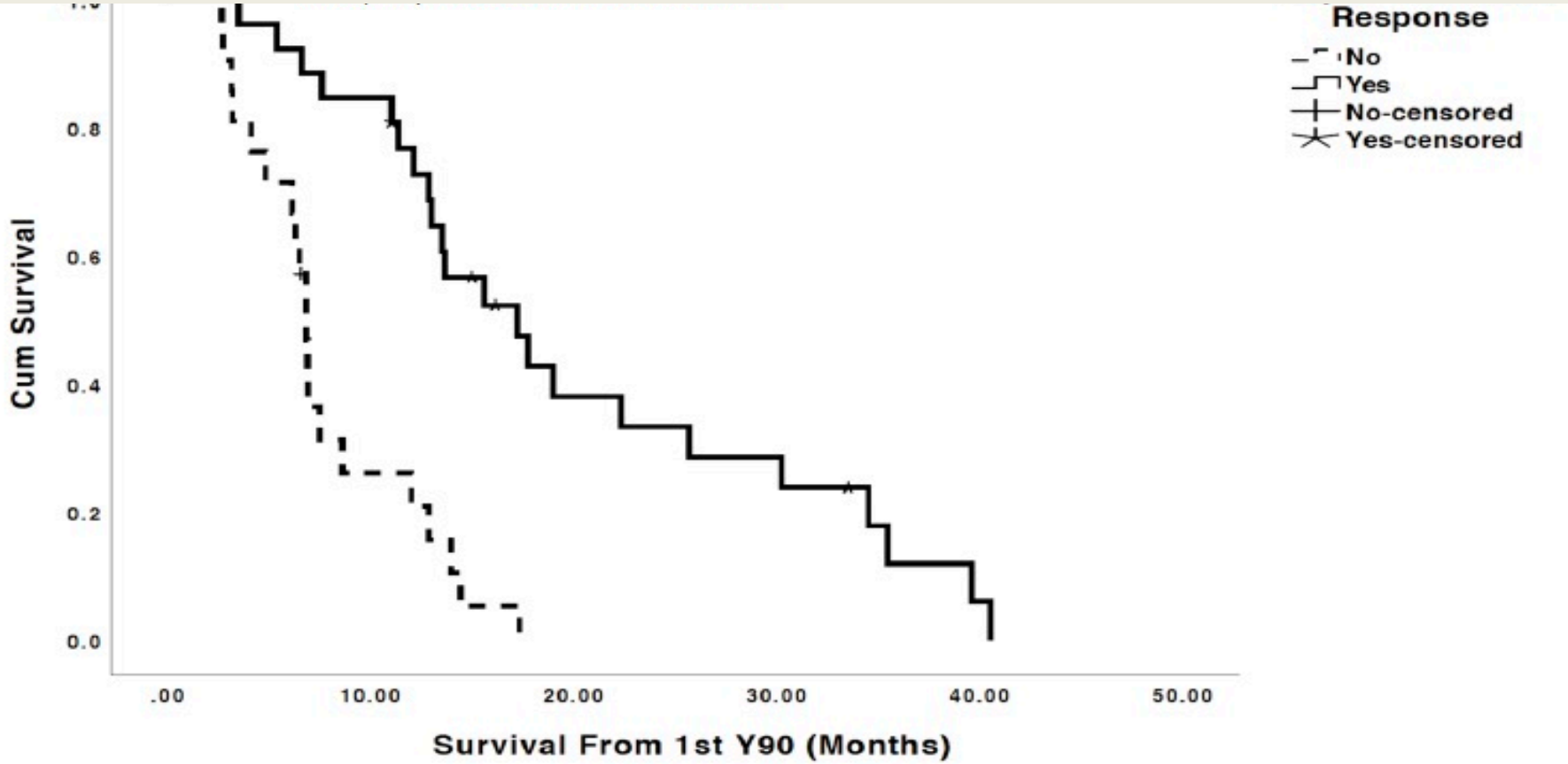


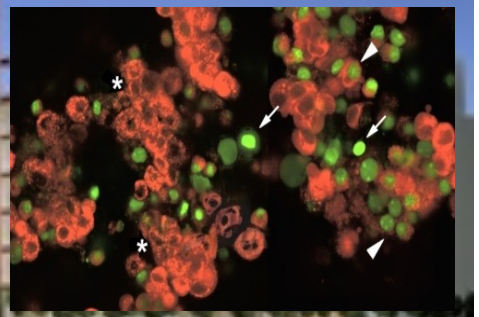
Figure 1. Patients exhibiting objective response had a median OS of 17.2 months vs 6.8 months for those without OR ($p<0.001$).

IO Technique Matters!

Margins

Dosimetry!

Thank You!



What else is going on…

Sarah Joseph, MD, MSc

Medical oncology

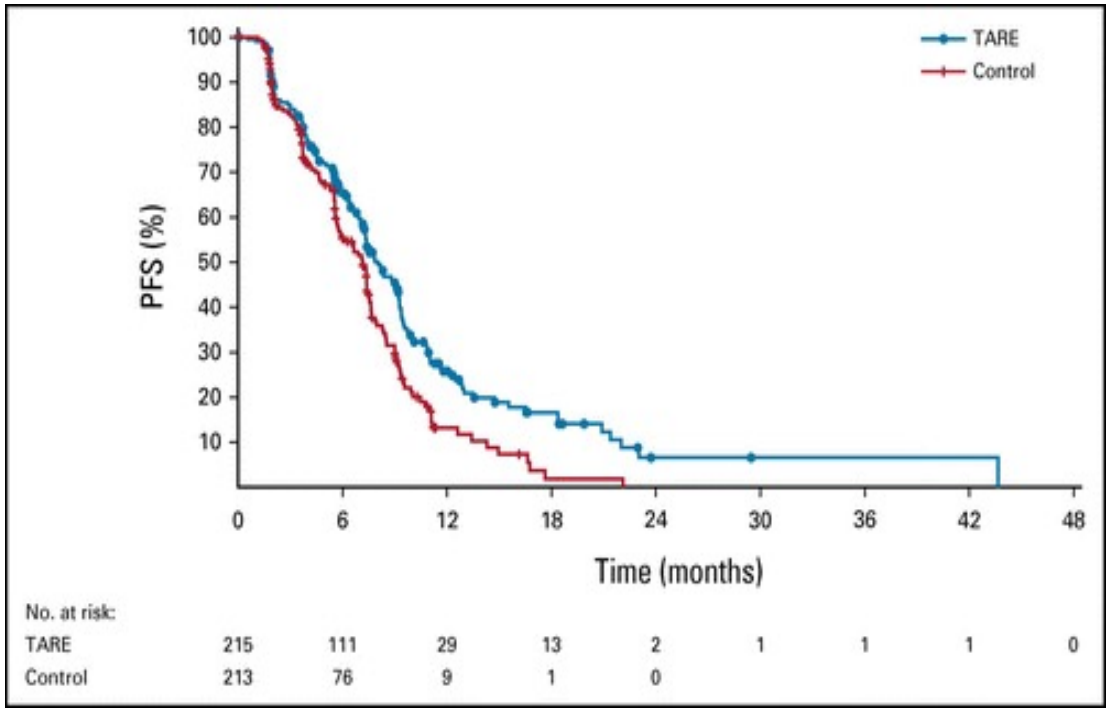
Miami Cancer Institute

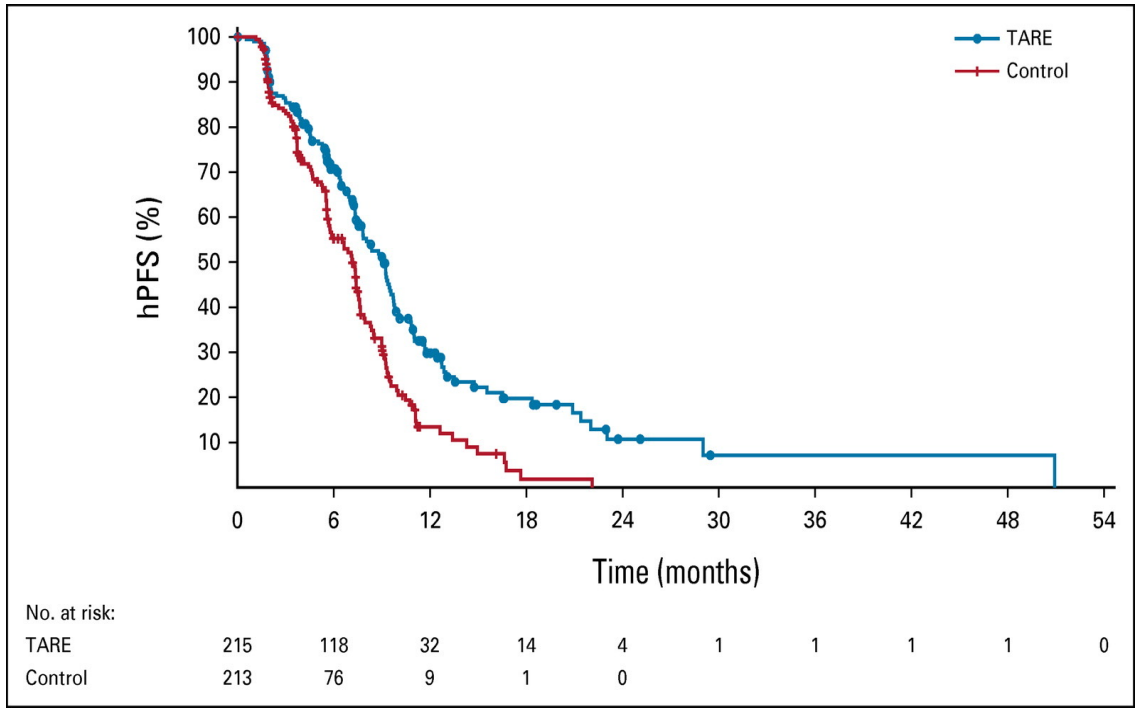
Session 1
Friday, October 22, 2021
Miami Beach, FL

Radioembolization With Chemotherapy for Colorectal Liver Metastases: A Randomized, Open-Label, International, Multicenter, Phase III Trial

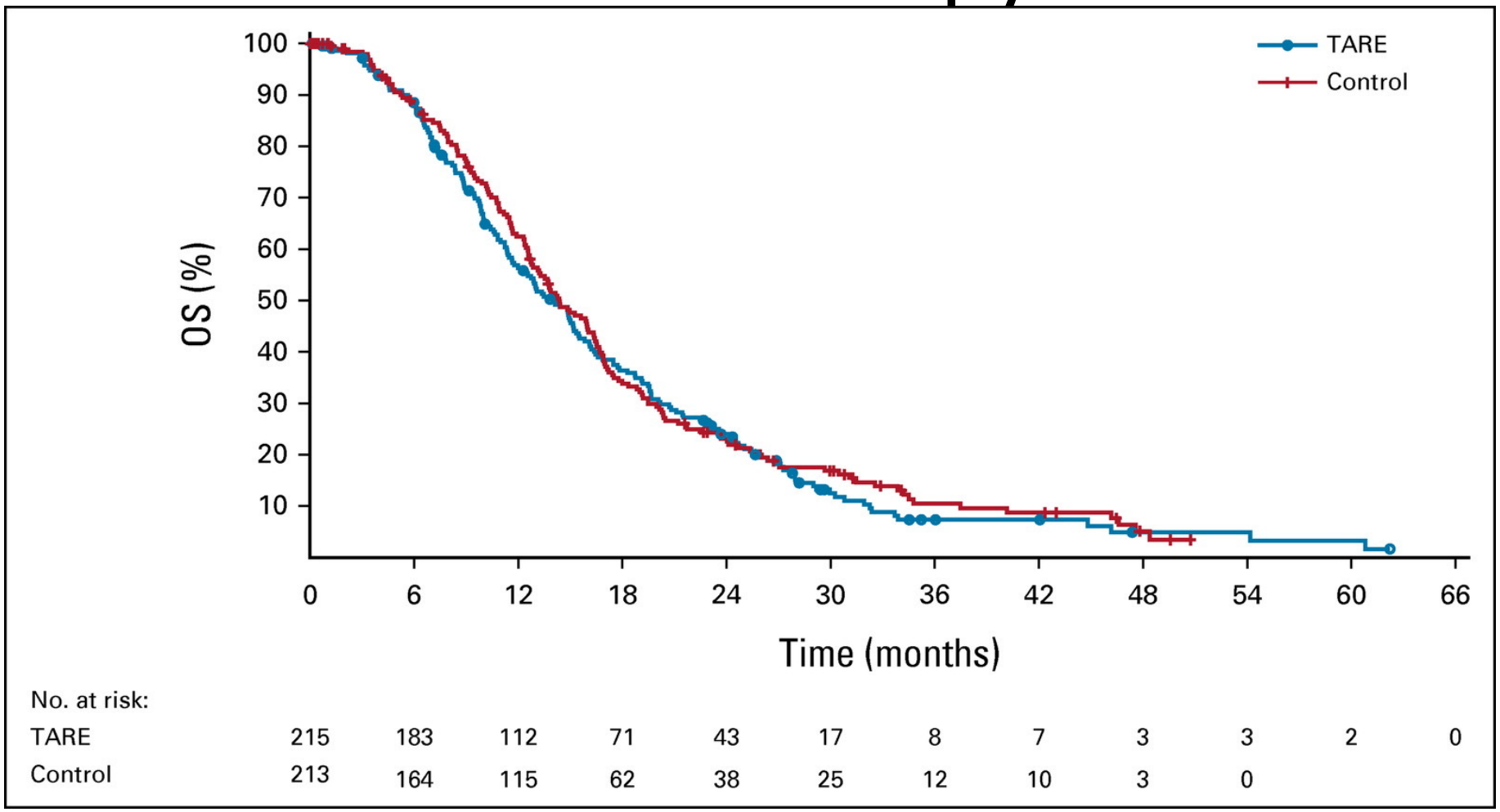
- September 20th 2021, EPOCH trial

PFS: TARE plus chemotherapy versus chemotherapy





OS: TARE plus chemotherapy versus chemotherapy



Outcomes of Lap Liver Resection for Colorectal Cancer Liver Metastases (CRLM)

Horacio J Asbun, M.D.
Chief, HPB Surgery
Miami Cancer Institute
Professor of Surgery
Mayo Clinic College of Medicine and Science

Hot Topic:

What are the cancer outcomes with Laparoscopic Liver Resection (LLR) for CRLM ?

5-year overall survival in comparative studies of lap. (LLR) vs. open (OLR) liver resection for CRLM

Reference	# patients LLR/OLR	Year	Country	Journal	Overall LLR	Overall OLR	Yrs	
Castaing et al.	60/60	2009	France	Ann Surg	6[illegible]		5	NS
Topal et al.	20/20	2012	Belgium	Surg Endosc	48	NS		
Cannon et al.	35/140	2012	USA	Surgery	[illegible]	42	5	NS
Iwahashi et al.	21/21	2013	France	Surg End[illegible]	51	5	NS	
Montalti et al.	57/57	2014	Belgium	E. J S[illegible] [illegible]O	65	5	NS	
Beppu et al.	171/342	2015	Japan		70	68	5	NS
Allard et al.	73/73	2015	France	[illegible]urg	78	75	5	NS
De'Angelis et al.	52/52	2015	Fra[illegible]	J Lap Adv Surg Tech	73	62	5	NS
Hasegawa et al.	102/69	2015	[illegible]	Surgery	57	49	5	NS
Lin et al.	36/36	2015	C[illegible]	Int J Colorectal Dis	51	55	5	NS
Cipriani et al.	133/133	[illegible]	England	Br J Surg	64	63	5	NS
Lewin et al	[illegible]	[illegible]016	Australia	HPB	54	63	5	NS
Goumard et al	[illegible]1	2018	USA	HPB	81	68	5	NS
Efanov et al	20/20	2020	Russia	Surg Endosc	60	65	5	NS

LLR comparable 5-yr OS vs OLR for CRLM

Ann Surg, 2018 Feb; 267:199-207

RANDOMIZED CONTROLLED TRIAL

Laparoscopic Versus Open Resection for C al Liver Metastases

The OSLO-COMET Randomized Co ial

Åsmund Avdem Fretland, MD,†‡ Vegar Johansen Dagenborg, MD Maria Waaler Bjørnelv, MPhil,*†††*
*Airazat M. Kazaryan, MD, PhD,** Ronny Kristiansen ang Fagerland, MSc, PhD,‡‡*
John Hausken, MD,§§ Tor Inge Tønnessen, MD dreas Abildgaard, MD, PhD,¶¶
Leonid Barkhatov, MD,||||‡ Sheraz Y D,† Bård I. Røsok, MD, PhD,†*
*Bjørn Atle Bjørnbeth, MD, PhD,† Marit Hele , PhD,***††† Kjersti Flatmark, MD, PhD,¶§‡*
Eline Aas, MPhil, PhD,††† and Bjørn F D†‡ on behalf of the Oslo-CoMet study group*

Positive RCT in favor of LLR for CRLM

- RCT in resectable CRC liver metasta 016)
- 133 LLR pts vs. 147 OLR (pare paring)
- Well matched # mets, l A, CRS, preop chemo
- Less postop com (19% vs 31%, p=0.02), and shorter LOS (2.2 vs 4.0 days, p<0.001) in LLR vs OLR
- No differe R time, margins, or total costs.
- QOL and Q s better in LLR group (p=0.001)

Robles-Campos et al, Open vs. Laparoscopic Liver Surgery for Colorectal Liver Metastases (LapOpHuva). A Prospective Randomized Clinical Trial. Surg Endosc. 2019; 33:3926-3936

- RCT in resectable CRC liver metastases (2005-201
- 96 LLR vs. 97 OLR patients
- Well matched age, BMI, # mets, loca chronous disease, CEA, preop chemo, extent of resection
- No difference OR time, EB usions, R0 margins
- Lower global morbi vs 24%, p=0.025), and shorter LOS (4 vs 6 days, p<0.001) i OLR
- No differ or DFS at 1-, 3-, 5-, or 7-yr between groups. 5-year OS: 49% LLR % OLR

Positive RCT in favor of LLR for CRLM

LLR allows for earlier initiation of adjuvant systemic chemotherapy for CRLM vs. OLR

Author	Year	Journal	Center	# patients LLR vs. OLR	Time to chemo LLR vs. OLR
Tohme et al	2015	JOGS	Pittsburgh	66 / 66	42 vs 63 days, p<0.001
Mbah et al	2017	Am J Surg	Louisville	30 / 44	24 vs 39 days, p<0.0001
Kawai et al	2018	Surg Endosc	Sorbonne	22 / 44	43 vs 55 days, p=0.012

Summary/Conclusions

- Comparable oncologic outcomes (R0 rate, 5-yr DFS, & 5-yr OS) have been reported for LLR for limited CRC mets. compared to OLR (case-controls, propensity score matching, and meta-analyses)
- Oslo CoMet/LapOpHuva RCT for CRLM showed shorter LOS and less morbidity in LLR, same 5 yr-OS.

…..and What Else Happened??

Karen T Brown, MD, FSIR

Professor of Radiology

University of Utah

Salt Lake City, Utah

Session 1
Friday, October 22, 2021
Miami Beach, FL

Disclosures

Karen Brown, MD: Consultant, AstraZeneca

Brand names are included in this presentation for participant clarification purposes only.

No product promotion should be inferred.

Annals of Surgical Oncology (2021)28:1950-58

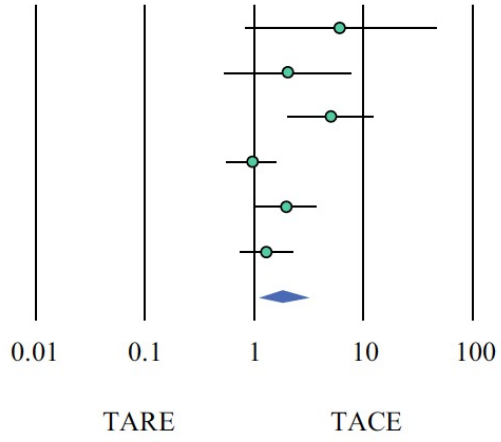
ORIGINAL ARTICLE – HEPATOBILIARY TUMORS

Chemoembolization Versus Radioembolization for Neuroendocrine Liver Metastases: A Meta-analysis Comparing Clinical Outcomes

Lisa Ngo, MPH[1], Ahmed Elnahla, MD[2], Abdallah S. Attia, MD[2], Mohamed Hussein, MD[2], Eman A. Toraih, MSc MD PhD[2,3], Emad Kandil, MBA MD FACS[2], and Mary Killackey, MD[2]

(a) Median overall survival

Study name	Odds ratio	Lower limit	Upper limit	Z-Value	p-Value
1 Ozkan, 2013	6.088	0.797	46.501	1.741	0.082
2 Engelman, 2014	2.060	0.532	7.971	1.047	0.295
3 Singla, 2016	5.137	2.089	12.636	3.564	0.000
4 Chen, 2017	0.980	0.564	1.702	-0.072	0.943
5 Minh, 2017	1.993	1.062	3.741	2.148	0.032
6 Egger, 2020	1.344	0.769	2.352	1.037	0.300
	1.915	1.140	3.218	2.455	0.014



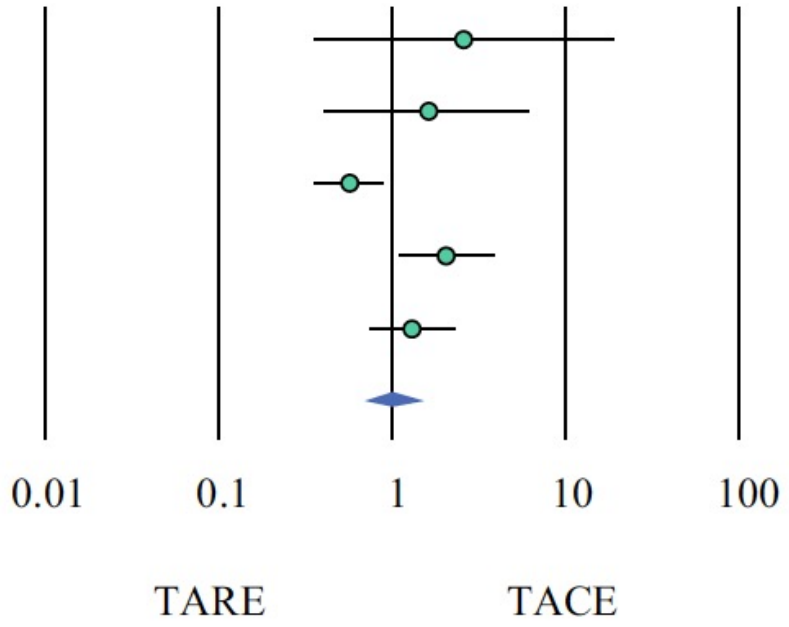
There Was No Difference in Hepatic PFS

(b)

Median hepatic progression-free survival

Study name	Odds ratio	Lower limit	Upper limit	Z-Value	p-Value
1 Ozkan, 2013	2.592	0.368	18.259	0.956	0.339
2 Engelman, 2014	1.575	0.410	6.049	0.662	0.508
3 Chen, 2017	0.570	0.370	0.879	-2.543	0.011
5 Minh, 2017	2.010	1.071	3.773	2.174	0.030
6 Egger, 2020	1.292	0.739	2.259	0.897	0.370
	1.007	0.753	1.347	0.049	0.961

Odds ratio and 95%CI

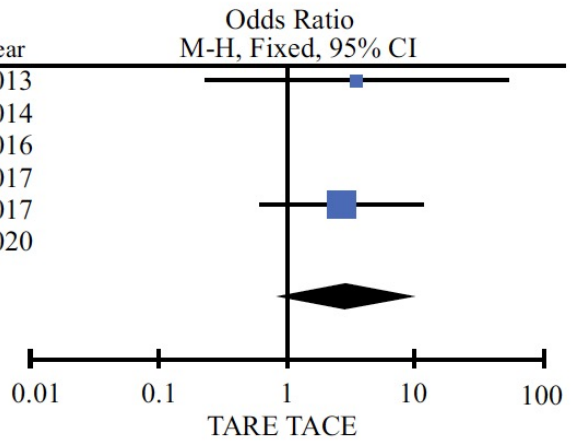


There Was No Difference in Symptom Response

(a) Hepatic tumor response within 3 months of treatment

Study or Subgroup	TACE Events	TACE Total	TARE Events	TARE Total	Weight	Odds Ratio M-H, Fixed, 95% CI	Year
Ozkan 2013	7	8	4	6	22.0%	3.50 [0.24, 51.90]	2013
Engelman 2014	0	0	0	0		Not estimable	2014
Singla 2016	0	0	0	0		Not estimable	2016
Chen 2017	0	0	0	0		Not estimable	2017
Minh 2017	86	90	32	36	78.0%	2.69 [0.63, 11.39]	2017
Egger 2020	0	0	0	0		Not estimable	2020
Total (95% CI)		98		42	100.0%	2.87 [0.81, 10.20]	
Total events	93		36				

Heterogeneity: $Chi^2 = 0.03$, df = 1 (P = 0.87); $I^z = 0\%$
Test for overall effect: Z = 1.63 (P = 0.10)



(b) Hepatic tumor response more than 3 months after treatment

Study or Subgroup	TACE Events	TACE Total	TARE Events	TARE Total	Weight	Odds Ratio M-H, Random, 95% CI	Year
Ozkan 2013	3	8	5	6	26.1%	0.12 [0.01, 1.58]	2013
Engelman 2014	7	17	6	12	35.6%	0.70 [0.16, 3.10]	2014
Singla 2016	0	0	0	0		Not estimable	2016
Chen 2017	0	0	0	0		Not estimable	2017
Minh 2017	0	0	0	0		Not estimable	2017
Egger 2020	134	139	38	46	38.3%	5.64 [1.74, 18.25]	2020
Total (95% CI)		164		64	100.0%	0.98 [0.12, 7.86]	
Total events	144		49				

Heterogeneity: $Tau^2 = 2.58$, $Chi^2 = 9.55$, df = 2 (P = 0.008); $I^z = 79\%$
Test for overall effect: Z = 0.02 (P = 0.99)