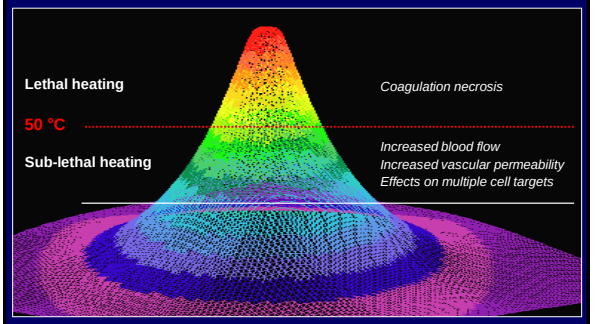
ECIO 2013
Fourth European Conference on Interventional Oncology
June 19-22
Budapest | Hungary

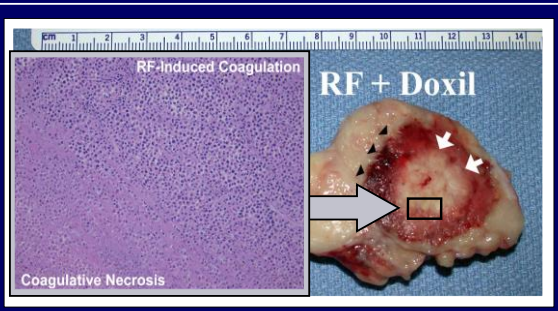
New Horizons: Thermally Sensitive Doxorubicin Carriers

Riccardo Lencioni, MD, FSIR, EBIR

Percutaneous Image-Guided Thermal Ablation: Temperature-Tissue Interactions



RFA plus IV Injection of Liposomal Doxorubicin in Animal Tumor Models



Ahmed et al. Radiology 2005;235:469–477

RFA plus IV Injection of Liposomal Doxorubicin in Animal Tumor Models

Treatment	Tumor Size (mm)	Size of Central Region of Coagulation (mm)	Size of Hyperemic Rim of Coagulation (mm)	Overall Size of Coagulation (mm)
RF ablation + doxorubicin	50.1 ± 1.8	20.9 ± 1.7	15.6 ± 7.4	36.5 ± 5.9
RF ablation alone	51.8 ± 0.2	15.3 ± 2.2	7.3 ± 1.1	22.7 ± 1.4

Note.—Data are means ± standard errors of the mean. *P* values for differences in values between the combined therapy and RF ablation–only treatment groups are as follows: .683 for tumor size, .006 for size of central region of coagulation (ie, white zone), .015 for size of hyperemic rim of coagulation (ie, red zone), and .037 for size of overall coagulation (ie, red and white zones combined). Significant increases in overall tumor tissue coagulation were achieved with combination therapy compared with the coagulation achieved with RF ablation alone.

+ 415 %
in ablation volume

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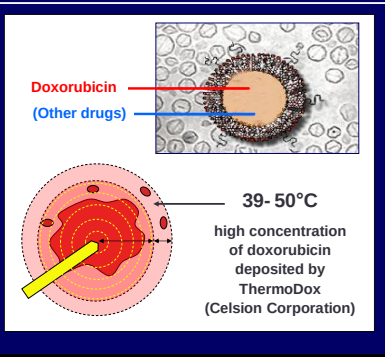
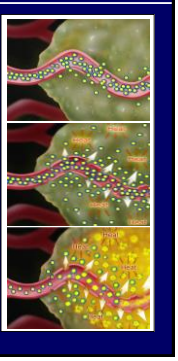
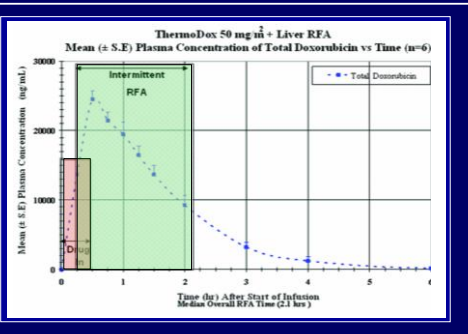
RFA in Combination with IV Heat-Activated Liposomal Encapsulation of Doxorubicin





A Phase I Study of Heat Deployed Liposomal Doxorubicin during RFA for Liver Malignancies



Wood B et al. J Vasc Interv Radiol 2012;23:248-255

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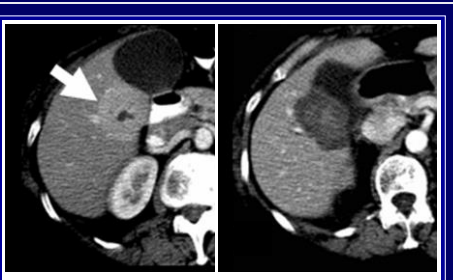

Pre-treatment Day 3

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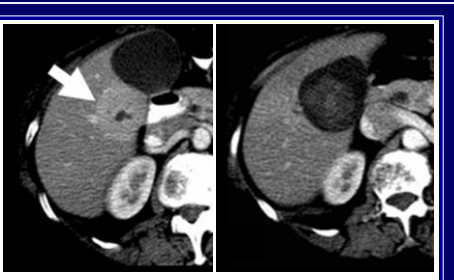


Pre-treatment Week 20

Wood B et al. J Vasc Interv Radiol 2012;23:248-255

HEAT: A Phase III Randomized Controlled Study of RFA + ThermoDox vs RFA Alone for HCC

HEAT

A Phase III, Randomized, Double-Blinded, Dummy-Controlled Study of the Efficacy and Safety of ThermoDox® in Combination with RFA Compared to RFA Alone in the Treatment of HCC

PIs: R. Lencioni, R. T. Poon

Main eligibility criteria:
- HCC 3-7 cm
- ≤ 4 tumors
- Candidate for RFA
- Child - Pugh A-B
- No prior treatment

Target enrollment:
- 700 patients

Randomization

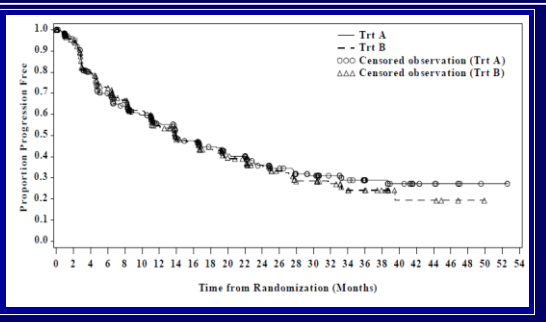
- 50 mg/m² ThermoDox
- Dummy infusion

Primary endpoint:
- PFS

Secondary endpoints:
- OS
- TTLR
- Safety
- Other

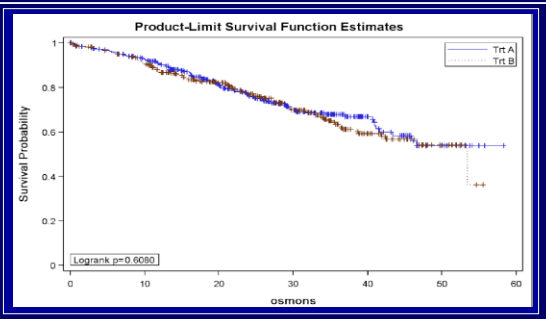
www.clinicaltrials.gov; NCT 00617981

HEAT Trial: Progression-Free Survival Analysis (Primary Endpoint)



Lencioni R and Poon RT. Presented at WCIO 2013, New York, NY, May 16-19.

HEAT Trial: Overall Survival Analysis (Secondary Endpoint)



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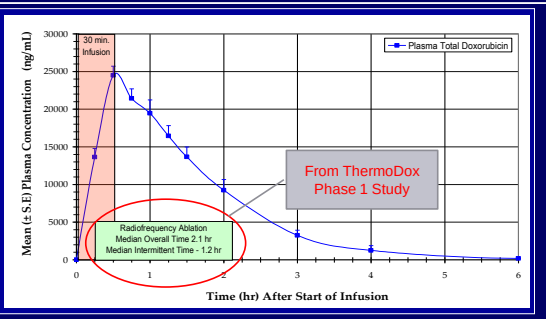
HEAT Trial: Overall Survival by RFA Heating Time in Single Lesions (Post-Hoc Analysis)



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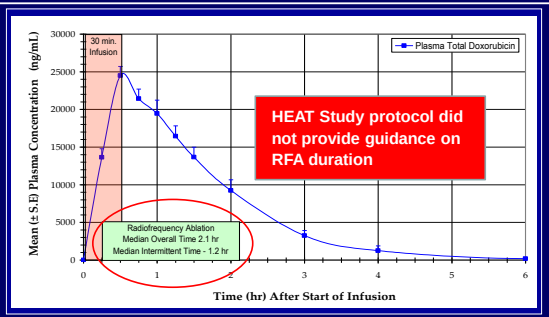

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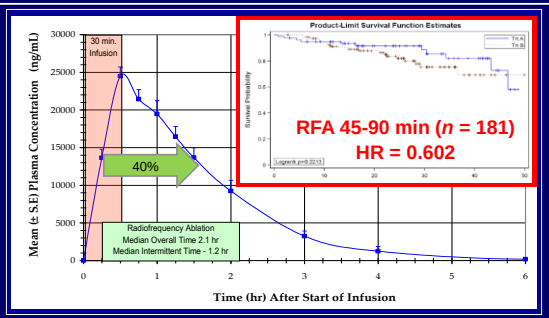

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HEAT Trial: RFA plus Heat Deployed Liposomal Doxorubicin – Where Do We Stand?

- The HEAT study shows that ThermoDox is well-tolerated with no unexpected serious adverse events
- The data did not provide sufficient evidence of clinical effectiveness, as measured by the trial's primary endpoint of progression-free survival
- Post-hoc findings suggest that optimized heating cycles could improve RFA plus ThermoDox's potential for clinically relevant improved survival outcomes: however these data should be viewed with caution since they are not statistically significant and the HEAT study has not reached its median point for overall survival analysis