
PRINCIPLES OF MODULATED ELECTRO-HYPERTHERMIA (MEHT)

PRESENTATION OF THE PHILIPPINE LAUNCHING EVENT OF ONCOTHERMIA 2024.06.01.

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CITATION

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Presentation of the Philippine Launching Event of Oncothermia 2024.06.01.
<https://youtu.be/uWPUCgKANcc>,
<https://www.youtube.com/playlist?list=PLEaAiXVgvMsEazu16PMNSqcJjZKF1yB3Y>

Oncothermia Journal 35, July 2024: 9-20.
https://oncotherm.com/SzaszA_2024_Principles-of-mEHT_20240601



PHILIPPINES LAUNCHING EVENT
1ST JUNE 2024 | FAIRMONT MAKATI



Principles of modulated electro-hyperthermia (mEHT)

Brand name:
Oncothermia

Presenter:
Andras Szasz
Ph.D. Professor of Biophysics



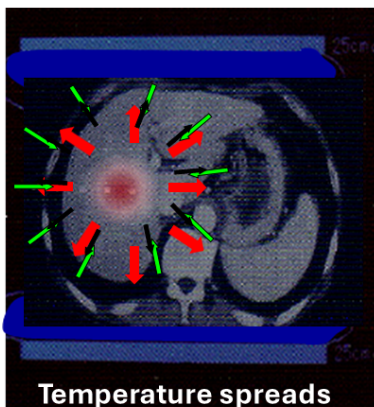
Hyperthermia in oncology was recognized in ancient medicine

Why are doctors skeptical nowadays?
Why is the method not used routinely?
What hinders practical applications?



**The heating is not controlled enough,
the results are contingent.**

What is the reason?



The blood flow tries to compensate for the warming

It is useful for complementary therapies

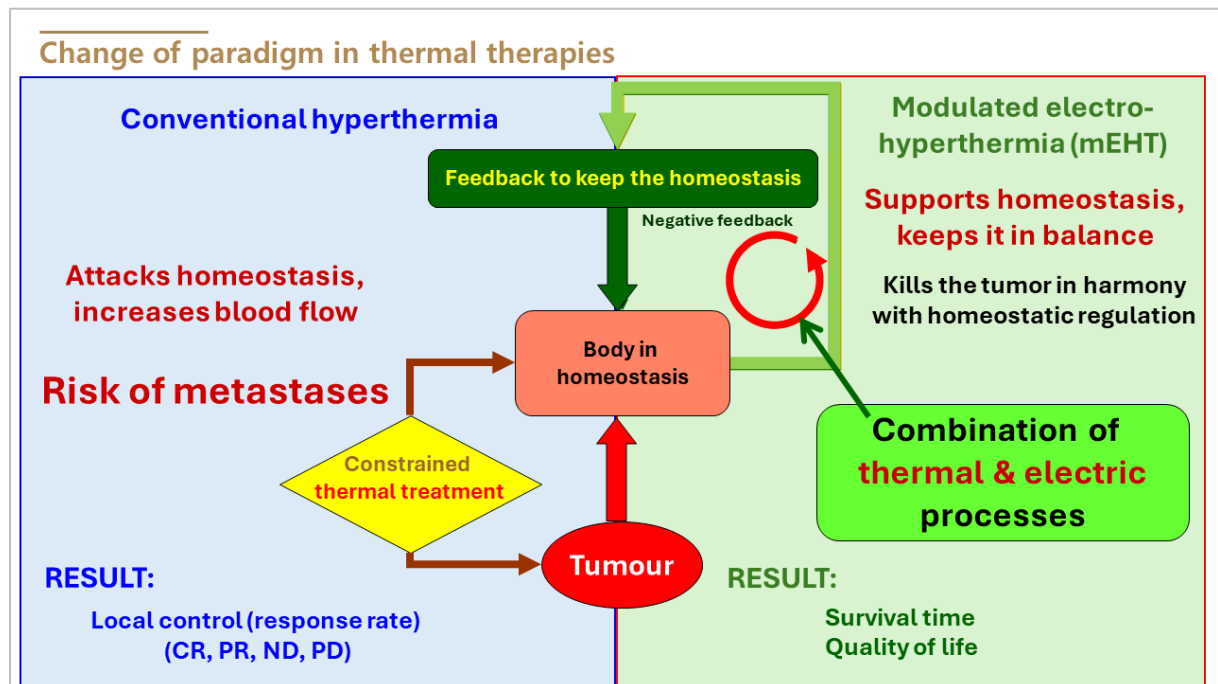
- radio [reoxygenization]
- chemo [drug delivery and reaction activity]

BUT:

- ➔ It supplies extra nutrients for the tumor!
- ➔ It risks the intensive dissemination, metastases

➔ Further uncertainty:
the thermal homeostasis is subject-dependent

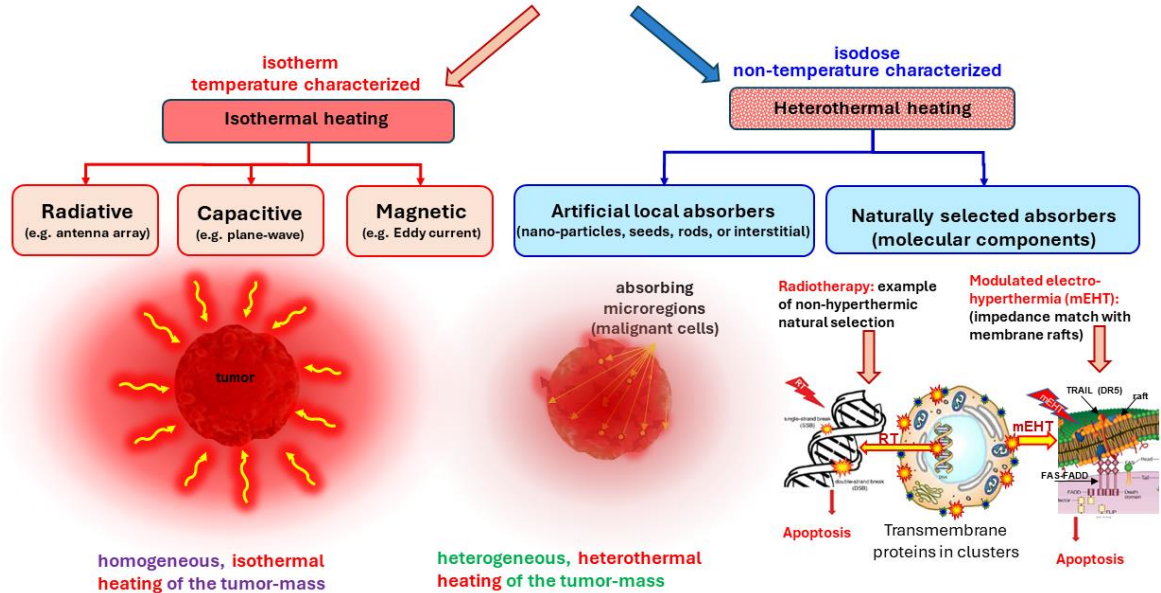
What to do? How to get out of the trap?



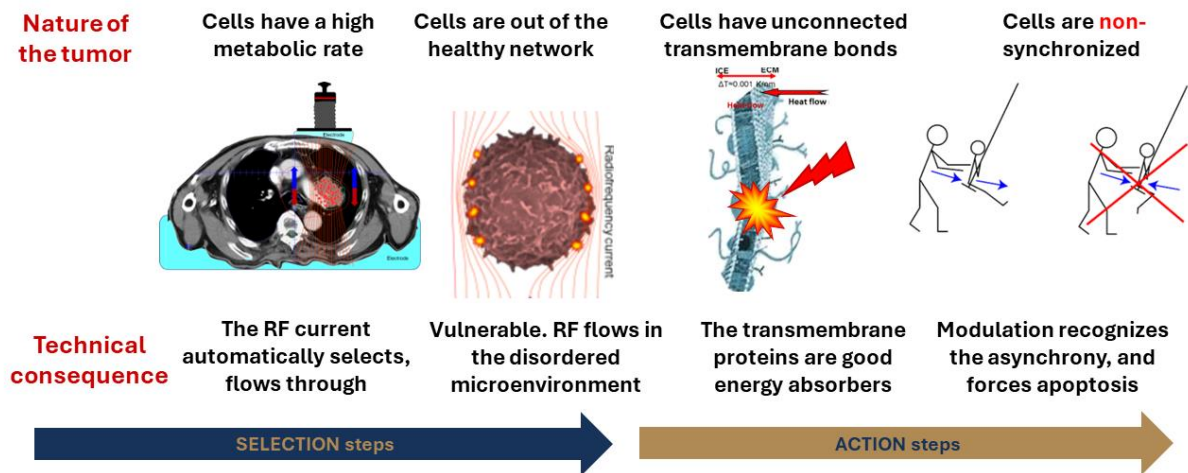
How to do it?

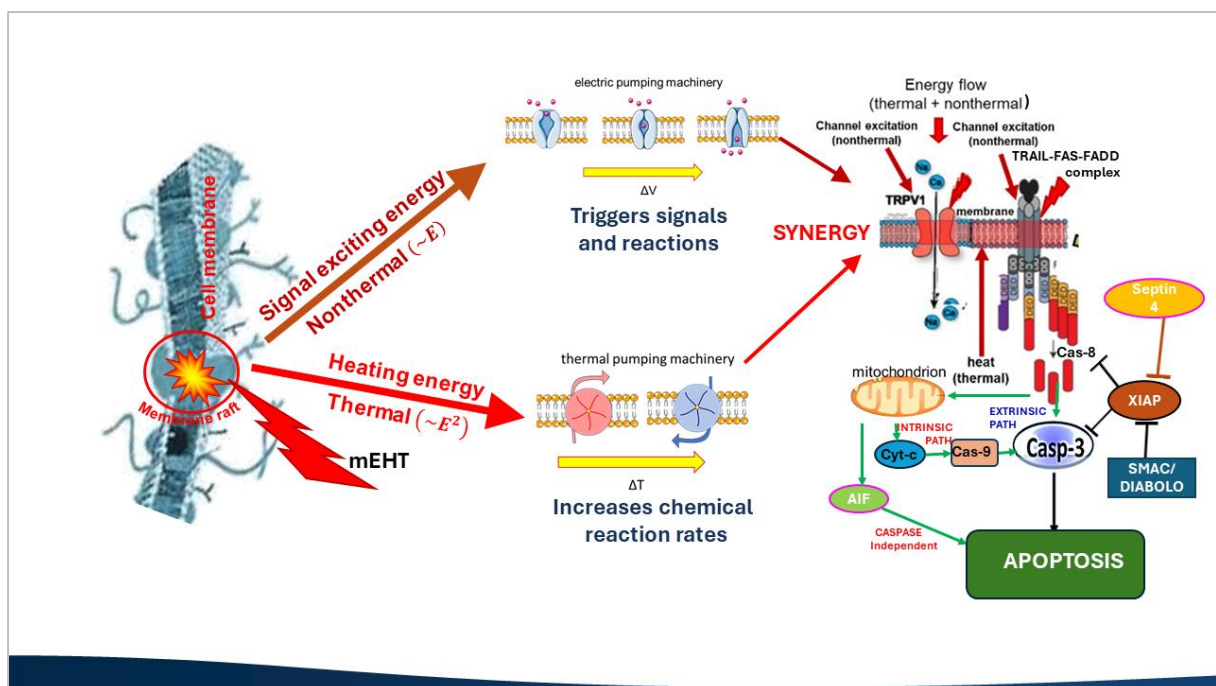
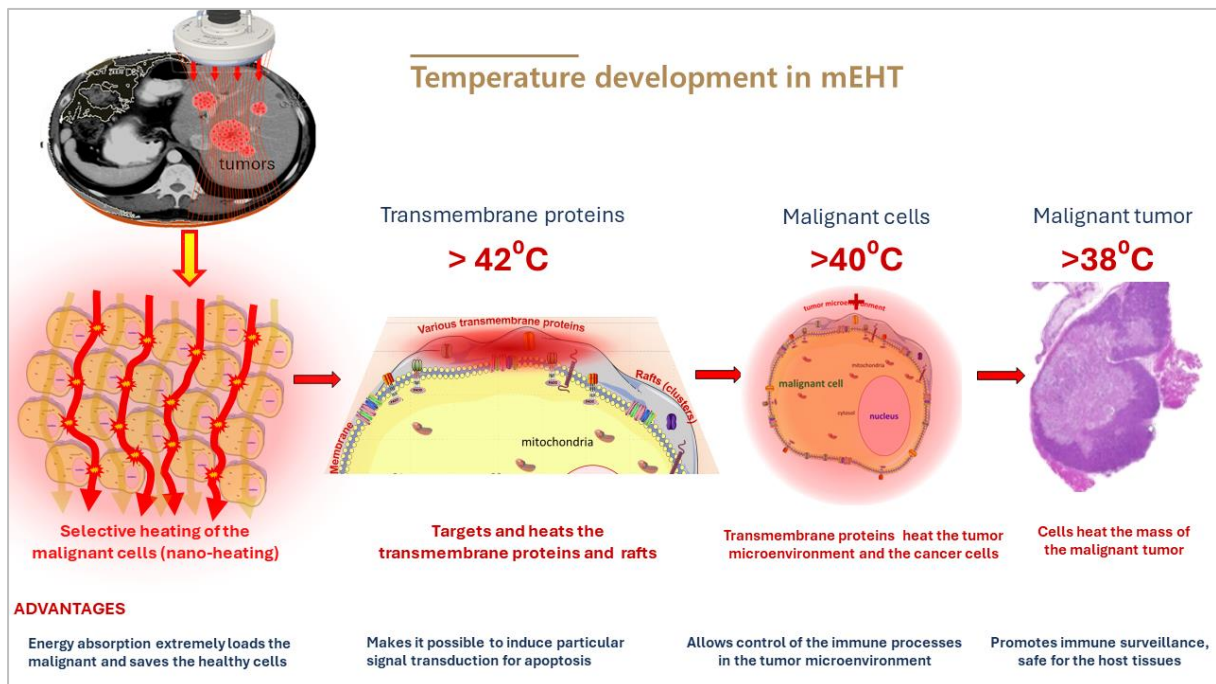
The trick is technical!

Electromagnetic technics of loco-regional hyperthermia



The tool: modulated electro-hyperthermia (mEHT, oncothermia ®)





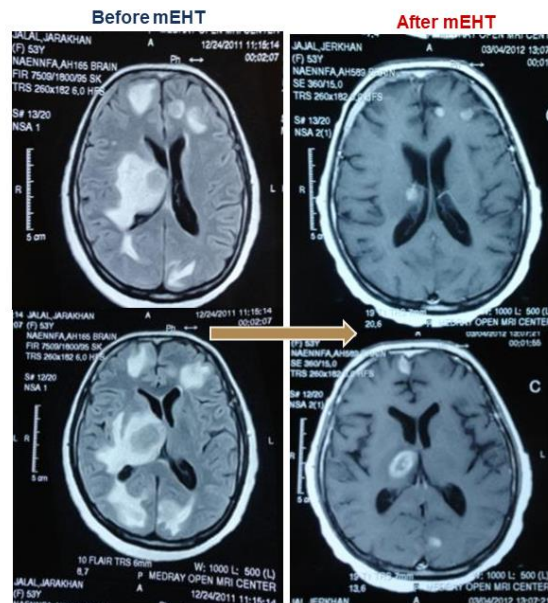
Brain metastasis from breast cancer

Investigator:
Dr. Marwan Akasheh

Institute:
Dar Alshefa' Tumors
Treatment Center,
Amman, Jordan,

Patient:
female 53 y.

mEHT Monotherapy



Mammary carcinoma

Investigator:
Prof. Dr. A. Herzog

Institute:
Fachklinik Dr. Herzog, Nidda,
(Bad Salzhausen), Germany

Patient:
60 y, female, (H.S.)

Diagnosis:
Mammary carcinoma, (March 2007)

Treatment:
(started December 2008) Chemotherapy
Vinorelbine + Mitomycin C, accompanied by
several sessions of oncothermia;

Result: complete remission (CR)

Before oncothermia therapy; 12. December, 2008



After oncothermia therapy, 20. March 2009



Esophagus carcinoma

Investigator:

Prof.D.Gronemeyer & Dr.H.Sahinbas

Department:

Department of Radiology and Microtherapy,
University of Witten-Herdecke, Bochum, Germany

Patient:

M, 46 y, male

Diagnosis:

Esophagus-Ca.

Therapies:

Surgery: +

Chemotherapy: Multiple CxT

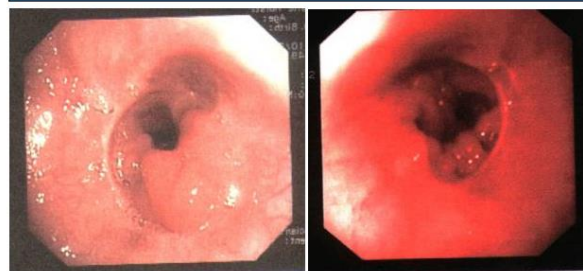
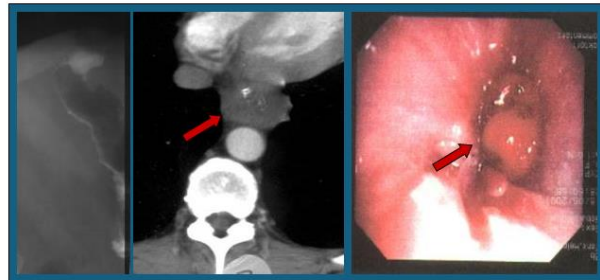
Radiotherapy: (50 Gy) from

Relapse: Anastomose, Full block of food-passage
in esophagus,

Oncothermia: monotherapy

Result: Complete remission (CR) Free-food
passage

Follow-up: Censored



after 6x oncothermia

after 12x oncothermia

Stomach Carcinoma, WHO IV

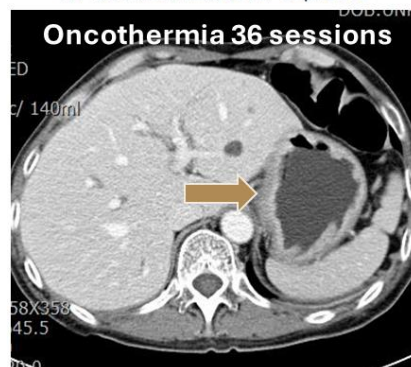
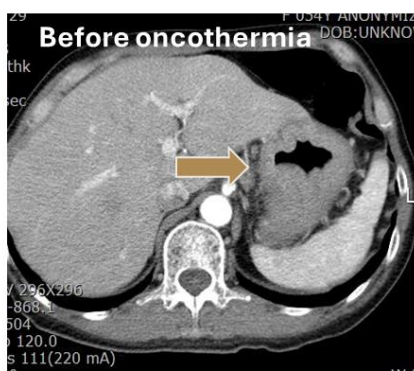
Investigator: Prof.Dr. Taesung Jeung

Institute: Department of Radiation Oncology, Kosin University, College of Medicine & Kosin University Gospel Hospital.

Patient: (54y/F)

Published: 31st ICHO Oct. Budapest; 2012

Stomach Ca in Jan/2012
No chemoTx, oncothermia monotherapy
HT 36 times: Mar/2012~Sept/2012



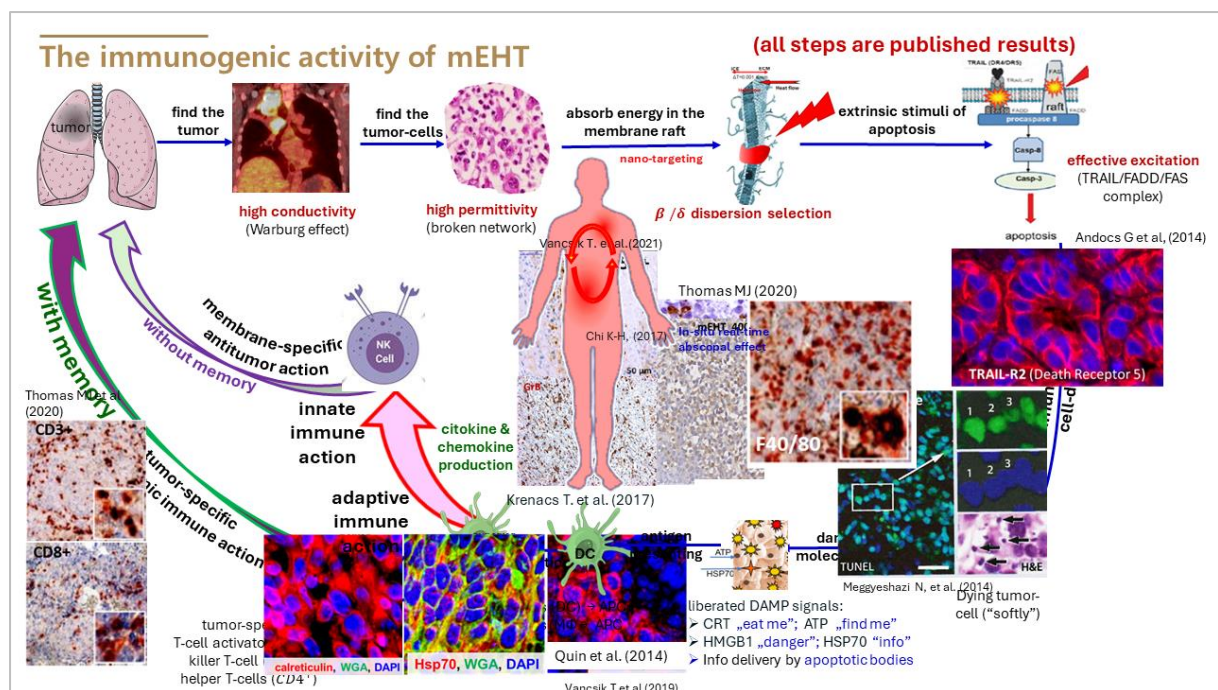
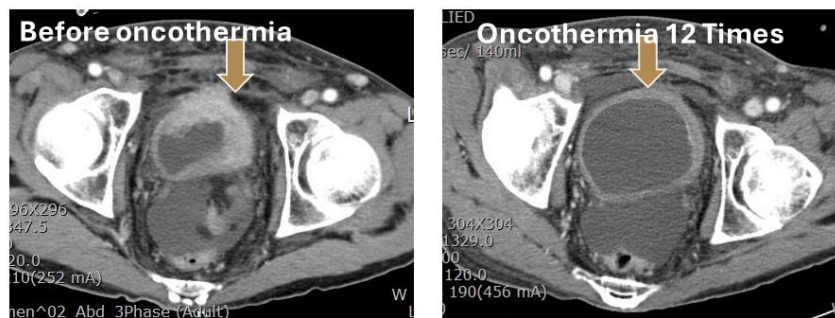
Pancreatic Ca and Metastatic Bladder Cancer (49y/M)

Investigator: Prof.Dr.Taesing Jeung

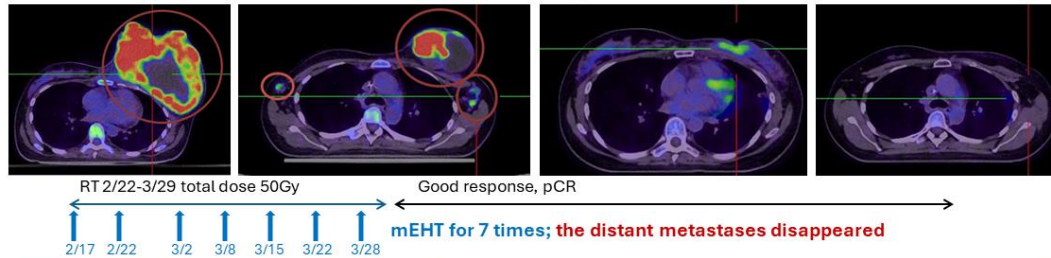
Institute: Department of Radiation Oncology, Kosin University, College of Medicine & Kosin University Gospel Hospital.

Oncothermia applied as monotherapy

Published: 31st ICHO Oct. Budapest; 2012

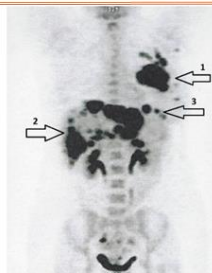


Marked local and distant response (immunogenic action)

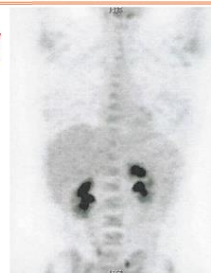


Chi M-S. et.al. (2021) Marked local and distant response of heavily treated breast cancer with cardiac metastases treated by combined low dose radiotherapy, low dose immunotherapy and hyperthermia, Ther Radiol Oncol 2021;5:17

Before therapy



After therapy



Whole body (18F)-FDG-PET-CT scan showing a 77 mm x 55 mm primary tumor in the left breast (arrow 1), multiple widespread liver masses (arrow 2), and an upper left nodular abdominal lesion (arrow 3). The metastases are so widespread, the use of arrows is nearly insufficient.

Iyikesici MS, Slocum AK, Slocum A, Berkarda FB, Kalamian M, Sey\\Wfried TN; (2017) Efficacy of Metabolically Supported Chemotherapy Combined with Ketogenic Diet, Hyperthermia, and Hyperbaric Oxygen Therapy for Stage IV Triple-Negative Breast Cancer; Cureus 9(7): e1445. DOI 10.7759/cureus.1445

Ovarian cancer with liver and spleen metastasis

Ranieri G et al.; (2017) Bevacizumab-Based Chemotherapy Combined with Regional Deep Capacitive Hyperthermia in Metastatic Cancer Patients: A Pilot Study, Int. J. Mol. Sci. 18: 1458;

Before therapy



After therapy



A 56-year-old female affected by ovarian cancer with liver and spleen metastasis, already treated with 12 cycles of Bevacizumab-based chemotherapy and 24 hyperthermia sessions

Metastatic esophageal cancer

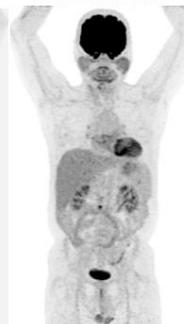
Chi K-Wet al.; (2018) Tumor-directed immunotherapy: combined radiotherapy and oncothermia, Conference of International Clinical Hyperthermia Society, Budapest, published in Oncothermia Journal, 2019.

Before therapy



2017.03.22

After treatment



2017.09.13

After treatment follow up



2017.12.29

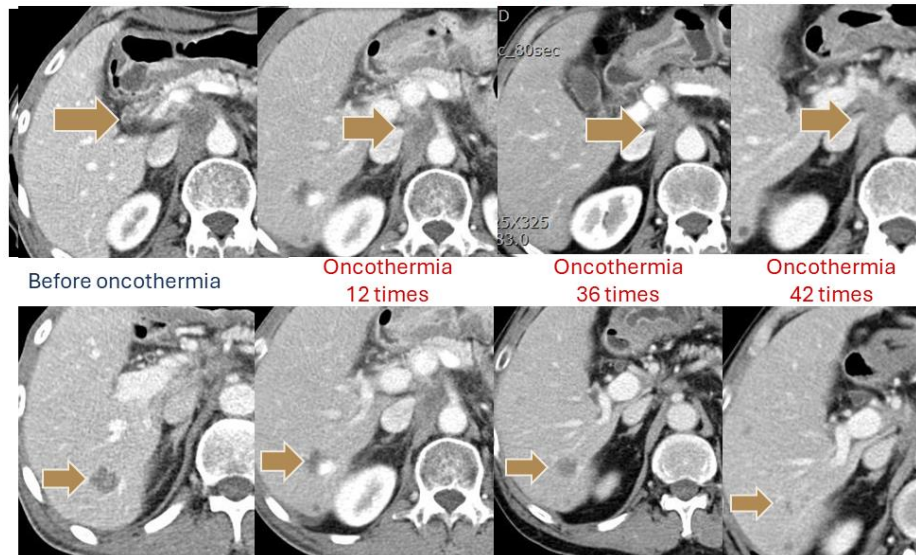
After treatment follow up



2018.04.19

Pancreatic cancer and liver metastasis

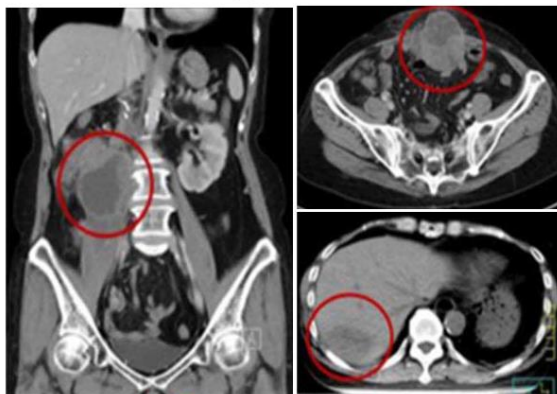
Investigator: Prof.Dr. Taesung Jeung | Institute: Department of Radiation Oncology, Kosin University,
Patient: male 58 y | Therapy: **Oncothermia monotherapy**, 42 times



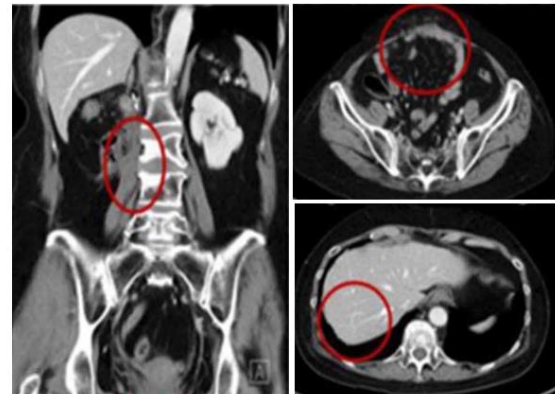
Metastatic urothelial carcinoma with abscopal tumor effect on liver metastases

Chi et al. (2020) Putative abscopal effect in three patients treated by combined radiotherapy and modulated electrohyperthermia, *Frontiers in Oncology*, 10:254

Before therapy



After therapy

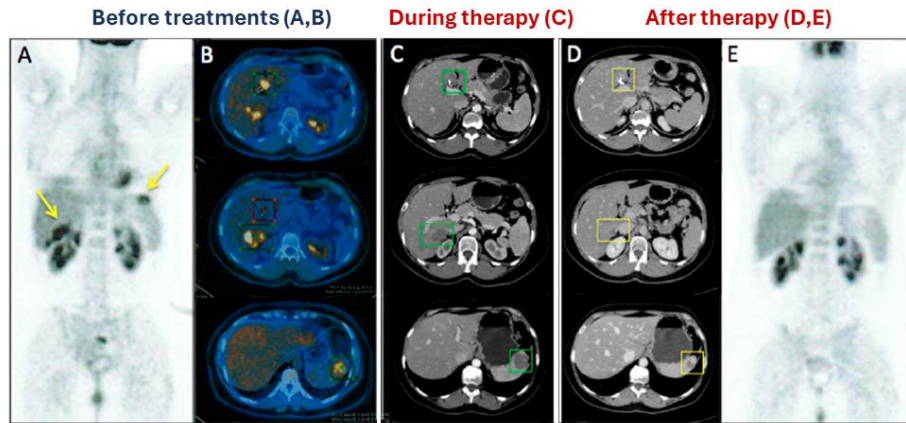


RT to abdomen mass 40Gy

+ 6 x Oncothermia

Abscopal effect

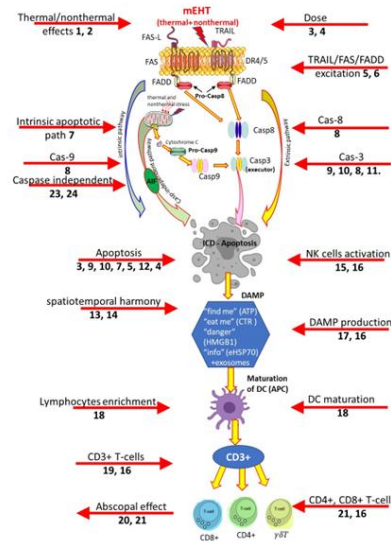
Ovarian cancer → liver + spleen metastasis
(Bevacizumab + mEHT)



Ranieri G et al.; (2017) Int. J. Mol. Sci. 18: 1458; doi:10.3390/ijms18071458

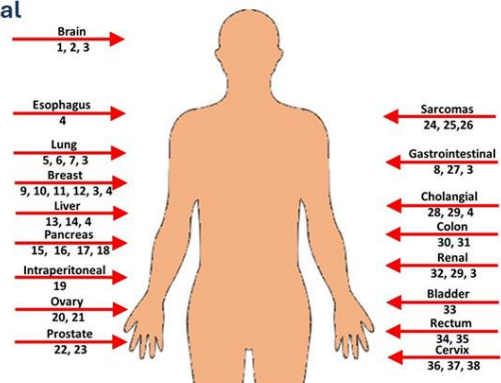
Publications

Basic molecular, preclinical



Some preclinical experiments with mEHT method. The numbers refer on the references: 1.= [42], 2.= [237], 3.= [238], 4.= [94], 5.= [202], 6.= [198], 7.= [239], 8.= [65], 9.= [207], 10.= [203], 11.= [240], 12.= [64], 13.= [207], 14.= [206], 15.= [204], 16.= [32], 17.= [205], 18.= [66], 19.= [241], 20.= [200], 21.= [33], 23.= [205].

Clinical



The clinical studies with mEHT. It contains various level of evidences including case reports and phase II/III trials. The Oncotherm PubList numbers denoting on the references.

1.= [243], 2.= [244], 3.= [245], 4.= [246], 5.= [247], 6.= [248], 7.= [249], 8.= [250], 9.= [251], 10.= [252], 11.= [253], 12.= [254], 13.= [255], 14.= [256], 15.= [257], 16.= [258], 17.= [259], 18.= [260], 19.= [261], 20.= [262], 21.= [263], 22.= [264], 23.= [265], 24.= [266], 25.= [267], 26.= [268], 27.= [269], 28.= [270], 29.= [254], 30.= [271], 31.= [272], 32.= [273], 33.= [274], 34.= [275], 35.= [276], 36.= [277], 37.= [278], 38.= [20].



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Thanks for your kind attention

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