

## **Comparing the Effectiveness of Pain Therapy (PT) and Modulated Electro-Hyperthermia (mEHT) Versus Pain Therapy Alone in Treating Patients With Painful Bony Metastases: an observational trial**

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# Comparing the Effectiveness of Pain Therapy (PT) and Hyperthermia Versus Pain Therapy Alone in Treating Patients With Painful Bony Metastases: an observational trial.

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## Aim

To compare the response, duration of pain relief, and time to achieve pain relief after pain therapy (PT) with or without hyperthermia (HT) in patients with painful bony metastases.

## Methods

Cancer patients with bony metastases and VAS score  $\geq 5$  on a 0-10 scale were treated with fentanyl patches (100  $\mu$ g every three days) and zoledronic acid (4mg every 28 days) combined with HT (PT + HT) versus PT alone. Hyperthermia was performed using the Onchotherm 2000 plus, with maintenance of the target temperature for 60 minutes /twice weekly for 2 weeks. The primary endpoint was VAS = 0-2 after treatment, and ECOG performance status reduction of at least one point from baseline evaluation.

## Results

The study included 19 patients: 10 in the PT + HT group and 9 patients in the PT-alone group. Average age of the sample was 57 years (range 40-86). Median VAS for PT +HT group was 8 at baseline and decreased to 3, 1 and 2 at 1, 3, 6 months after the start of HT respectively. Median VAS for PT-alone group was 8 at baseline and did not change at following time points. Median ECOG of PT +HT group was 2 at baseline and decreased to 1, 1 and 0 at 1, 3, 6 months after the start of HT respectively. Median ECOG for PT-alone group was 2 at baseline and did not change at following time points.

## Conclusion

The addition of HT to PT significantly increases the pain control rate and ECOG compared with RT alone for painful bony metastases.

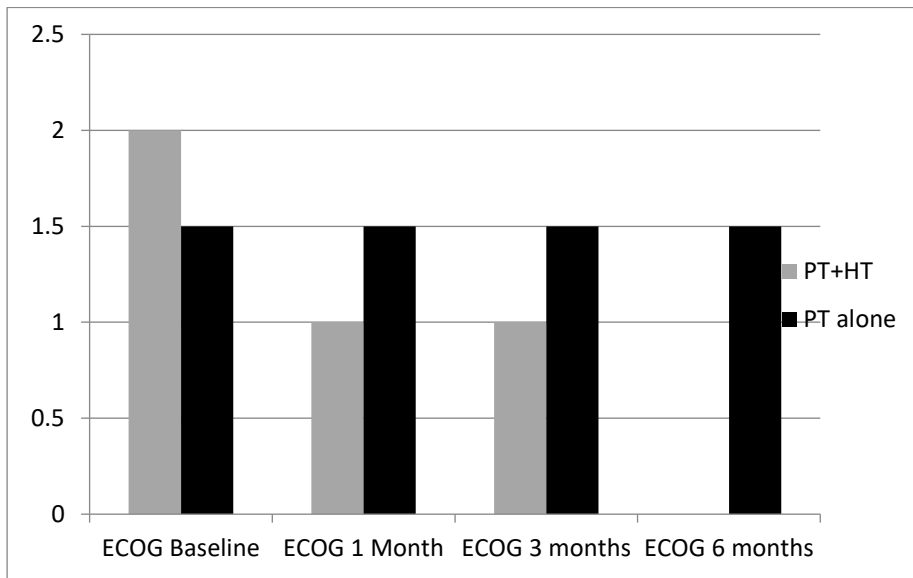


Figure 1) ECOG evaluation

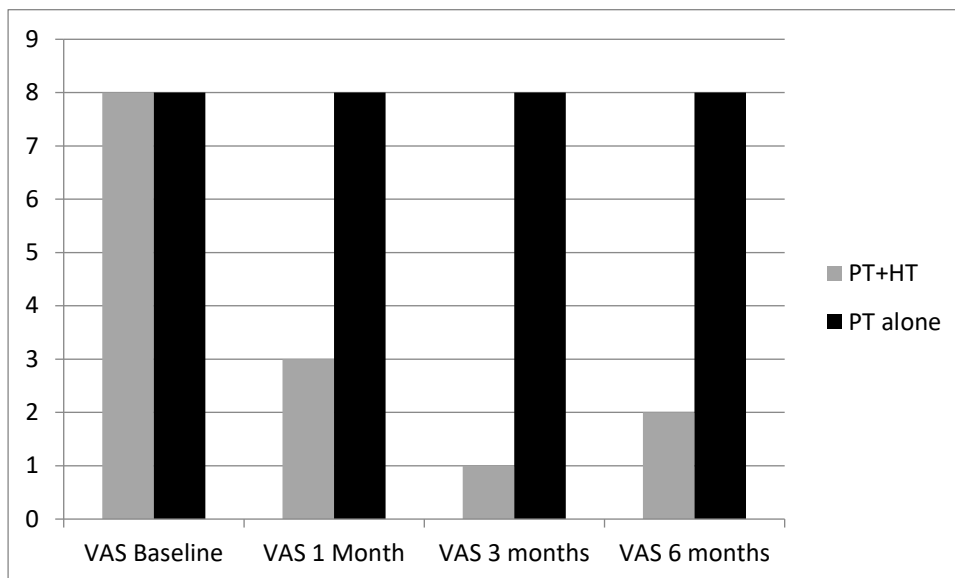


Figure 2) VAS evaluation

# Comparing the Effectiveness of Pain Therapy (PT) and Modulated Electro-Hyperthermia (mEHT) Versus Pain Therapy Alone in Treating Patients With Painful Bony Metastases: an observational trial

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## AIM:

To compare the response, duration of pain relief, and time to achieve pain relief after pain therapy (PT) with or without hyperthermia (mEHT) in patients with painful bony metastases.

Table 1) Baseline patient characteristics

Sex	n	%
Male	10	53
Female	9	47
Median age years (range)	57	(40-86)
<b>Type of primary tumor</b>		
BREAST	6	32
LUNG	4	21
PROSTATE	4	21
MESOTHELIOMA	1	5
COLON	1	5
OROPHARYNX	1	5
OVARY	1	5
PANCREAS	1	5
<b>Site of pain</b>		
Lumbar/Pelvis	10	53
Ribs	3	16
Pelvis	2	11
Pelvis, ribs	2	11
Sternum	1	5
Sternum, collarbone, ribs	1	5

## METHODS AND MATERIALS:

Cancer patients with bony metastases and VAS score  $\geq 5$  on a 0-10 scale were treated with fentanyl patches (100  $\mu$ g every three days) and zoledronic acid (4mg every 28 days) combined with mEHT (PT + mEHT) versus PT alone. The PT alone group included patients that were followed by our center but could not come twice a week for the mEHT because they lived too far away. Hyperthermia was performed using the Oncotherm EHY-2000 plus, with maintenance of the target temperature for 60 minutes /twice weekly for 2 weeks. The primary endpoint was VAS = 0-2 after treatment, and ECOG performance status reduction of at least one point from baseline evaluation.

## RESULTS:

The study included 19 patients: 10 in the PT + mEHT group and 9 patients in the PT-alone group. Average age of the sample was 57 years (range 40-86). Median VAS for PT +mEHT group was 8 at baseline and decreased to 3, 1 and 2 at 1, 3, 6 months after the start of mEHT respectively. Median VAS for PT-alone group was 8 at baseline and did not change at following time points. Median ECOG of PT +mEHT group was 2 at baseline and decreased to 1, 1 and 0 at 1, 3, 6 months after the start of mEHT respectively. Median ECOG for PT-alone group was 2 at baseline and did not change at following time points.

## CONCLUSIONS:

The addition of mEHT to PT significantly increases the pain control rate and ECOG compared with PT alone for painful bony metastases.

Figure 1) ECOG evaluation

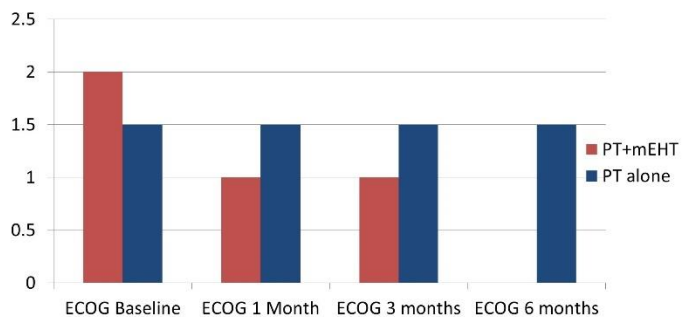


Figure 2) VAS evaluation

