

# Prospective Phase II Trial of Combination Treatment of Whole Hepatic Irradiation and Hyperthermia in Chemorefractory Numerous Hepatic Metastases of Gastrointestinal Malignancy

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## Introduction

- Liver – the most common metastatic site of GI malignancies
- Hepatic metastasis
  - ✓ Detected in 25% of initial and another 50% of localized
  - ✓ Indication of surgical resection – 20 to 25 %
  - ✓ Standard of care : systemic (or hepatic arterial) chemotherapy
  - ✓ Ultimate progression and liver function deterioration
- Whole hepatic irradiation (WHI)
  - ✓ Useful option for symptom palliation
  - ✓ Possibly maintain liver function
  - ✓ Local control – disappointing
- Hyperthermia
  - ✓ Well known adjunctive of RT
  - ✓ Some loco-regional control benefit in clinical trials
- This prospective phase II trial was designed
  - ✓ To evaluate the effectiveness of WHI with hyperthermia
  - ✓ To evaluate the safety of WHI with hyperthermia

- Adverse event (via CTCAE v4.0)\*: probably related with pleural mets PD

	n	0	I	II	III	IV	V
Dyspnea	10	8	-	1	-	-	1*
Ascites		4	-	4	1	-	-
Hematologic		5	2	2	1	-	-
Hematochezia		9	-	-	1	-	-
Pain		5	-	4	1	-	-

- Radiologic intrahepatic response (via RECIST v1.1)

	At one month	At 2 months	At 3 months
CR	0	0	0
PR	3	1	1
SD	5	2	2
PD	2	3	2
Unevaluated	-	4	5

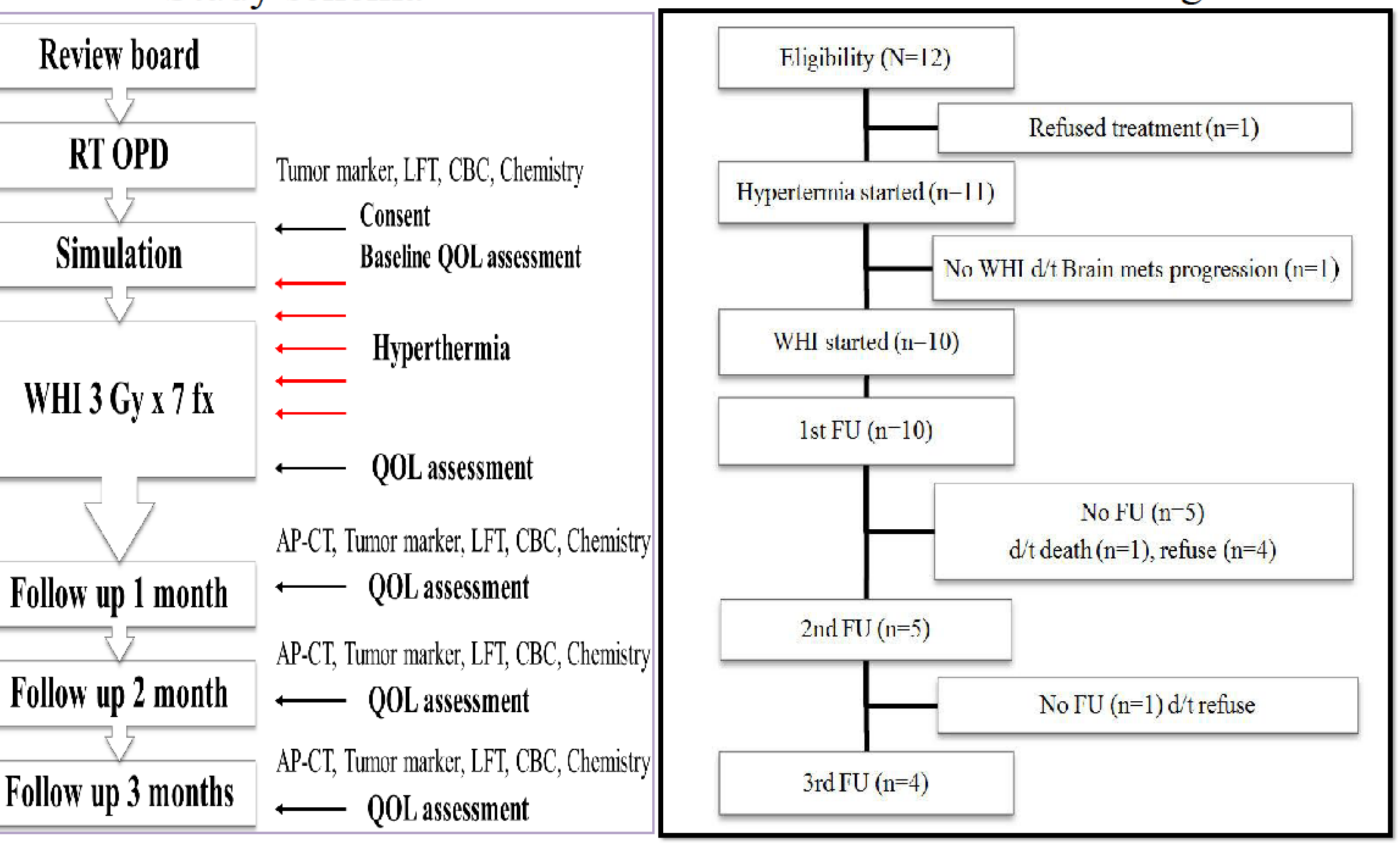
- Pain response (via Visual Analog Scale for Pain)

	At one month	At 2 months	At 3 months
CR	0	1	1
PR	4	1	0
SD	4	2	2
PD	2	2	2
Unevaluated	-	4	5

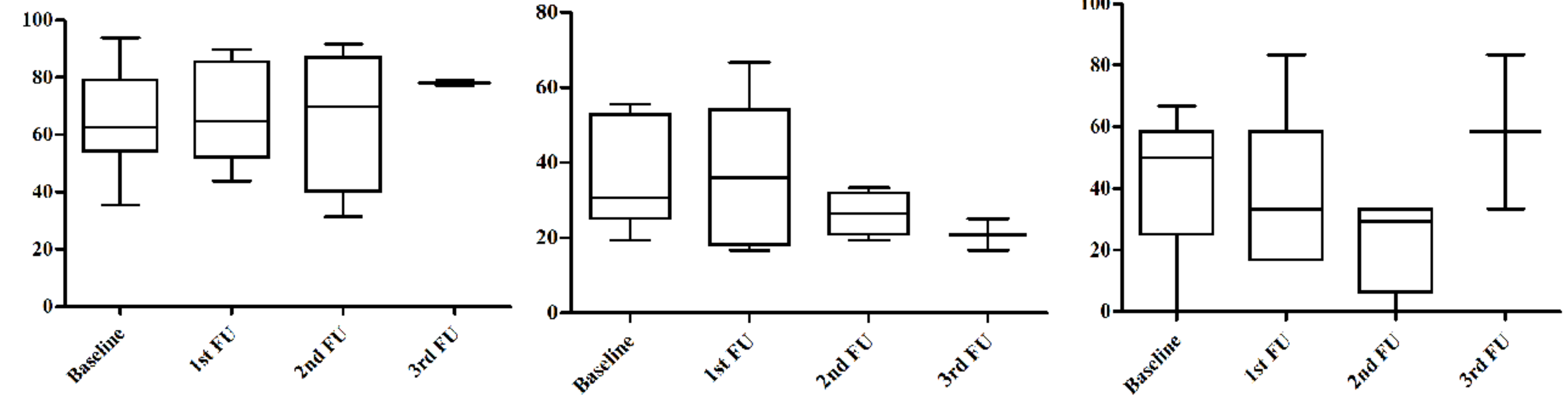
## Method and Materials

- Study period : Nov 2013 – Aug 2014
- Inclusion criteria
  - ✓ Unresectable Chemorefractory hepatic metastasis
  - ✓ Expected survival ≥ 8 weeks
  - ✓ ECOG performance status 0 to 3
- WHI with hyperthermia protocol
  - ✓ Study schema

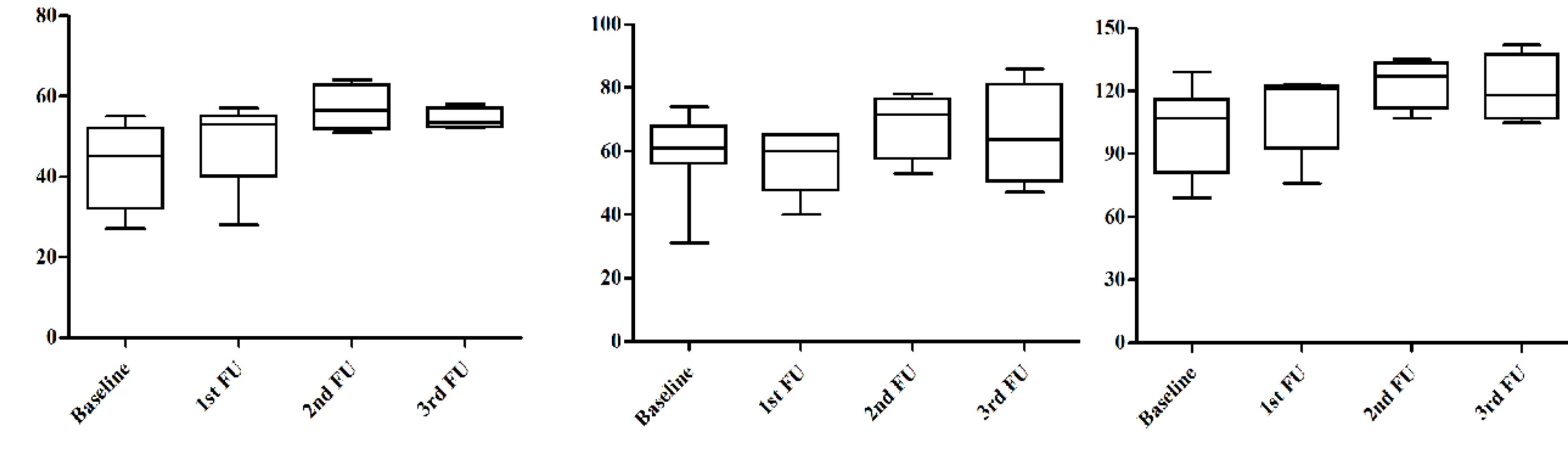
✓ CONSORT diagram



- Health related quality of life via EORTC QLQ-C30



- Health related quality of life via FACT-Hep

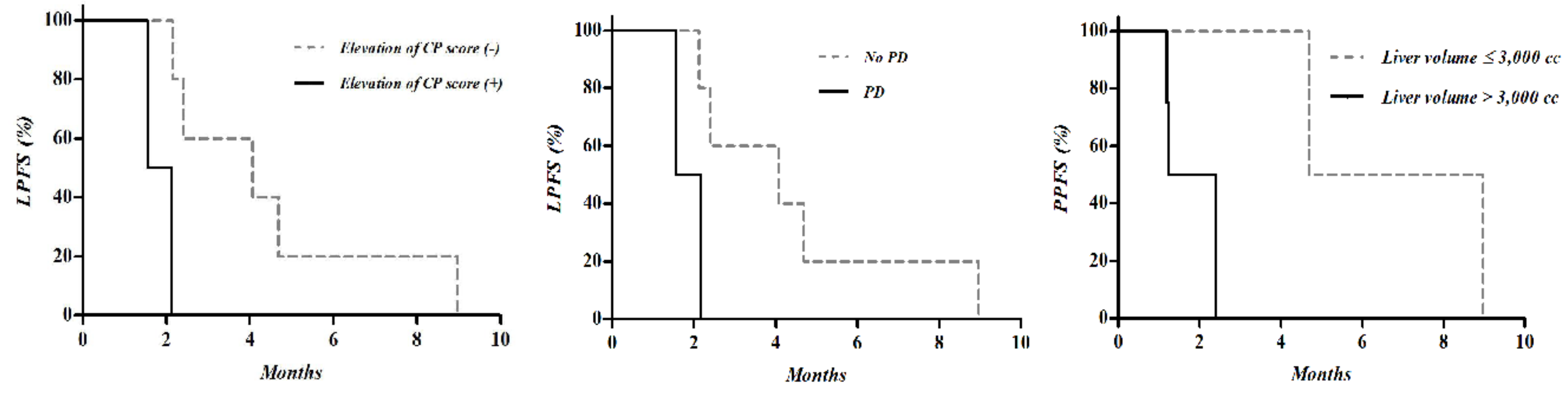


## Results

- Baseline characteristics of 10 enrolled patients

Variables		Number of patients (%)
Age – yr	Median (Range)	54 (48 – 80)
Sex	Male	5 (50.0)
ECOG performance	1	1 (10.0)
	2	1 (10.0)
Pathology	Adenocarcinoma	8 (80.0)
	Neuroendocrine carcinoma	2 (20.0)
Site of primary tumor	Colon, other	2 (20.0)
	Colon, sigmoid	3 (30.0)
	Rectum	5 (50.0)
Time to hepatic Metachronous metastasis		3 (30.0)
Primary tumor resection	Initial	4 (40.0)
	After chemotherapy	1 (10.0)
	Not done	5 (40.0)
Previous chemotherapy lines (repeated measure)	First	10 (100.0)
	Second	9 (90.0)
	Third	8 (80.0)
	Fourth or more	6 (60.0)

- Kaplan-Meier survival curves according to prognostic factors



## Conclusion

- Combined WHI with hyperthermia
  - ✓ Well tolerated without severe toxicities
  - ✓ Favorable pain palliation
  - ✓ Short local control duration is still remained problem
- Limitation of the present study
  - ✓ Case is too small

