

日本語要約

- ◎ 肺転移を有する肺癌（非小細胞肺癌）を対象（脳転移以外の胸郭外転移がある症例は除外）
- ◎ 化学療法、温熱療法、高気圧酸素治療による集学的治療の成果
- ◎ 69%で奏効がえられた
- ◎ 全体の間接生存期間は35ヶ月、5年生存率は26%と、IV期にしては非常に優れた結果
- ◎ 集学的治療による良好な治療成績が証明された

Chemo-hyperthermia for non-small cell lung cancer with multiple pulmonary metastases

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Backgrounds

- The purpose of this study was to evaluate the efficacy of systemic chemotherapy using paclitaxel and carboplatin plus regional hyperthermia and hyperbaric oxygen (HBO) treatment for non-small cell lung cancer (NSCLC) with multiple pulmonary metastases.

Materials

- Between 2004-2011
- 42 patients of clinical stage IV (34 cases) or post-operative pulmonary metastases (8 cases)
- Age: 63.5 ± 9.6 , Male vs. Female=22:20
- Performance status (PS) 1: 2=23: 19
- Pathological diagnosis
adeno ca.: large cell ca.=38: 4
- In 13 patients, curatively stereotactic radiotherapy was done for brain metastases.

Chemotherapy

- First line chemotherapy was paclitaxel and carboplatin and several regimens were selected after second line.
- PAC 50-60mg/m² + CBDCA AUC 1-1.5
- Weekly or biweekly administration was selected by grade of adverse event.

Hyperthermia

- All patients were received.
- Session: 27.8 ± 21.7
- 8 MHz radiofrequency-capacitive regional hyperthermia (Thermotron RF-8)
- Heating location: lung, liver, pelvis, peritoneum (focus to main tumor)
- time: 50min
- Schedule: just after chemotherapy or during chemotherapy

Hyperbaric oxygen

- All patients were received.
- Session: 29.2 ± 26.4
- Chamber (Sechrist Industries Inc., model 2800 J, Anaheim, California) pressured with 100% oxygen to 2.0 atmospheres absolute
- Time: 90min
- Schedule: just after chemo-hyperthermia

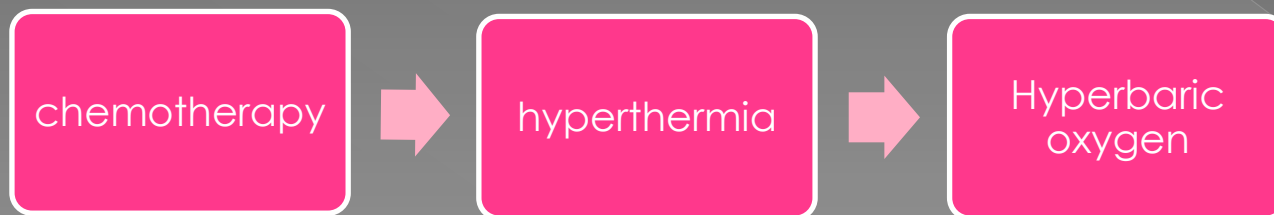


Table 1: Response rate

Response	No. of cases	Rate
CR	7/42	17%
PR	22/42	52%
SD	13/42	31%
CR+PR	29/42	69%

The median time to progression of disease was 9.2 months.

Table 2: Response rate by RF output power

Response	>1200W	<1200W
CR+PR	16/29	13/29
SD	9/13	4/13

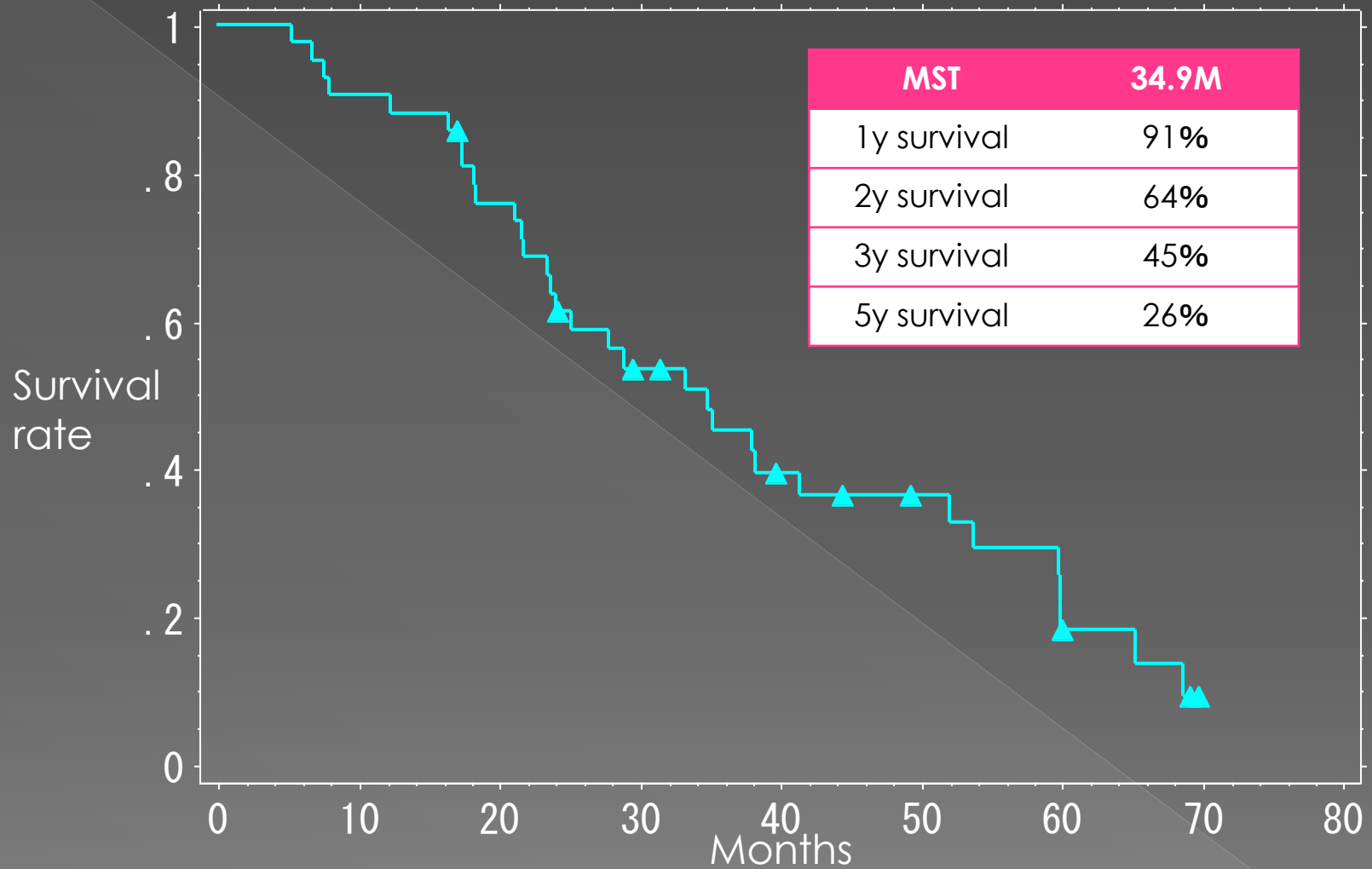


Fig. 1: Overall survival curve of all cases

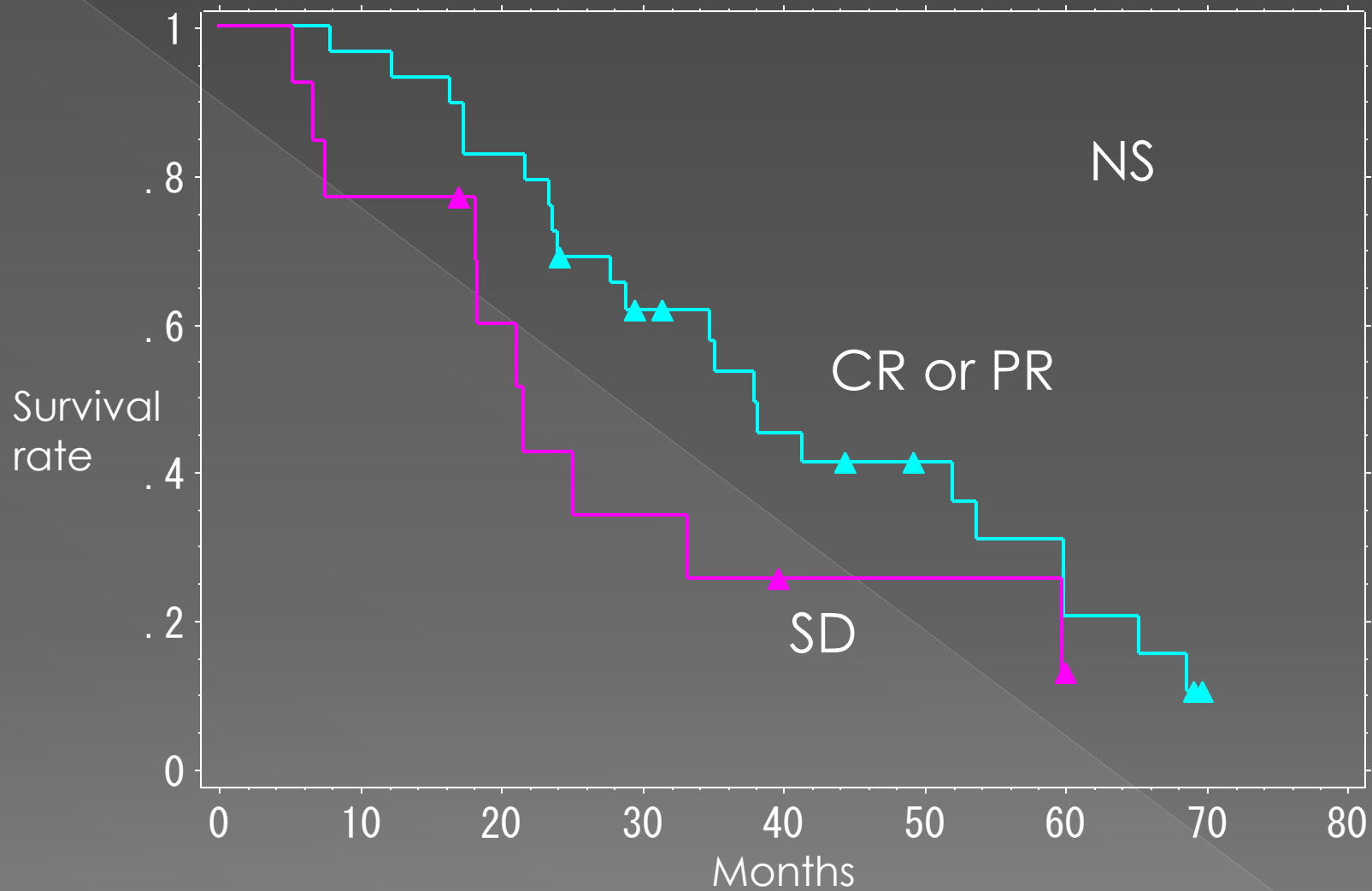


Fig. 2: Overall survival curve by local response

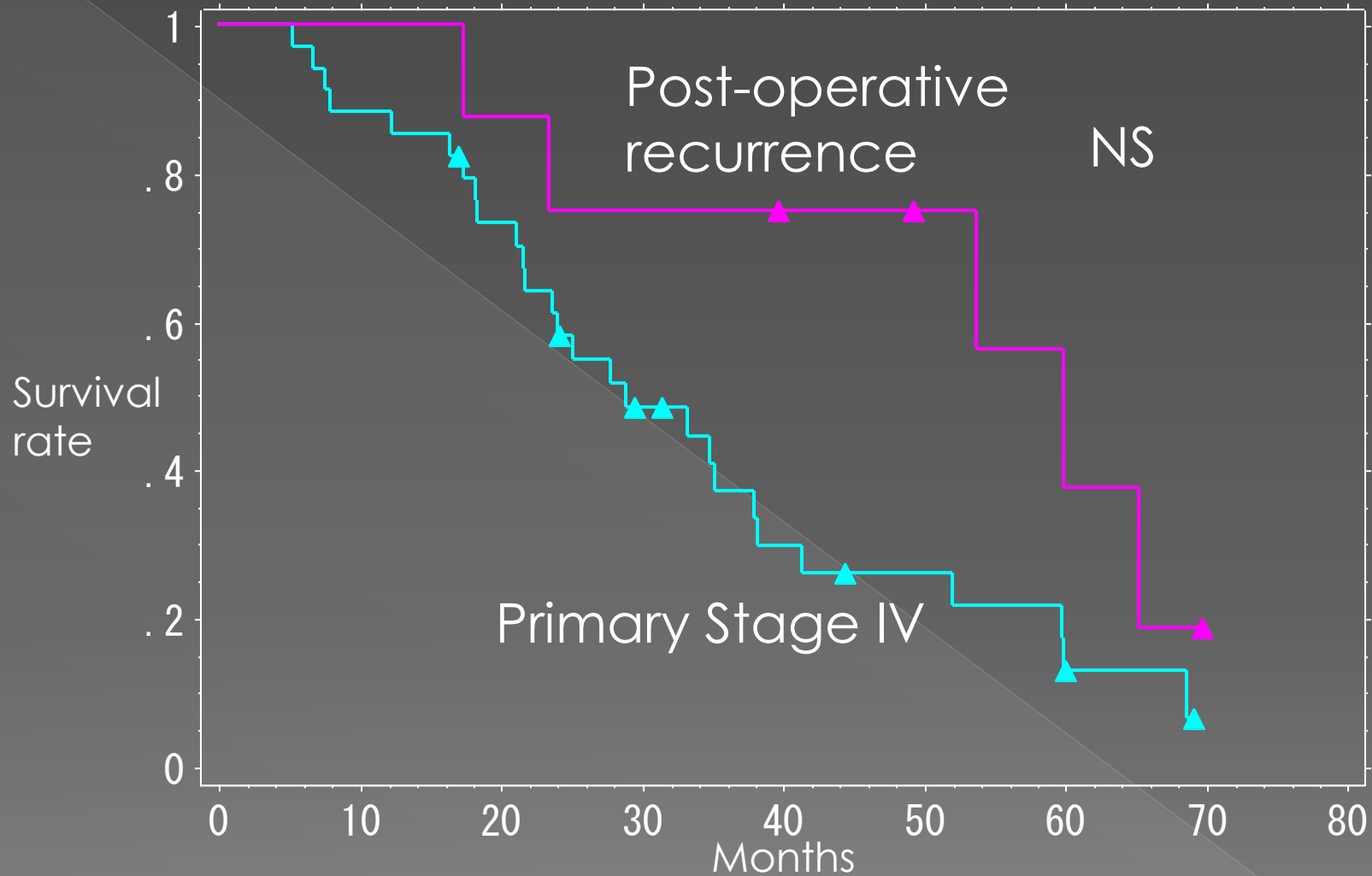


Fig. 3: Overall survival curve by primary or post-operative recurrence

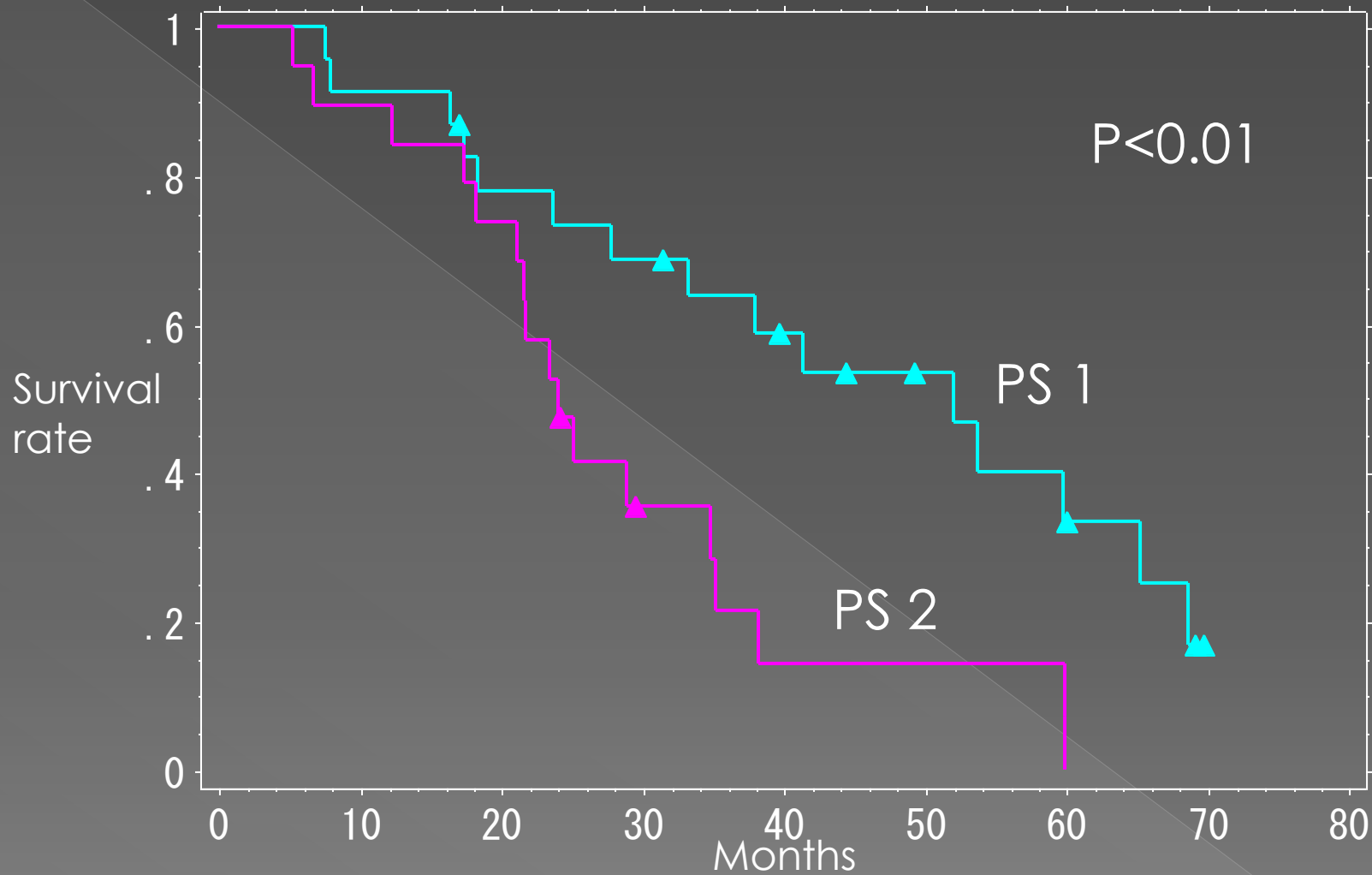


Fig. 4: Overall survival curve by PS

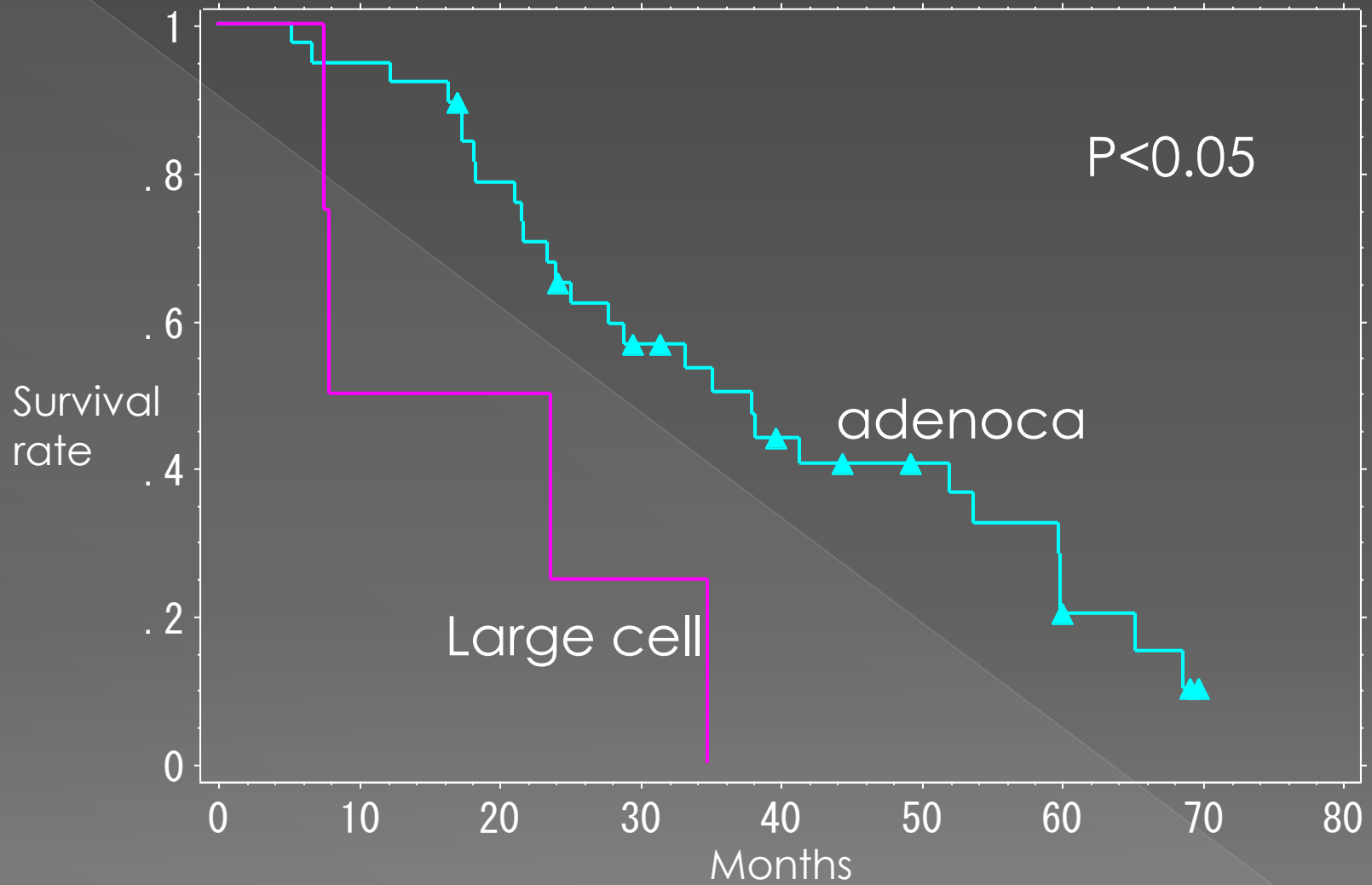


Fig. 5: Overall survival curve by pathology

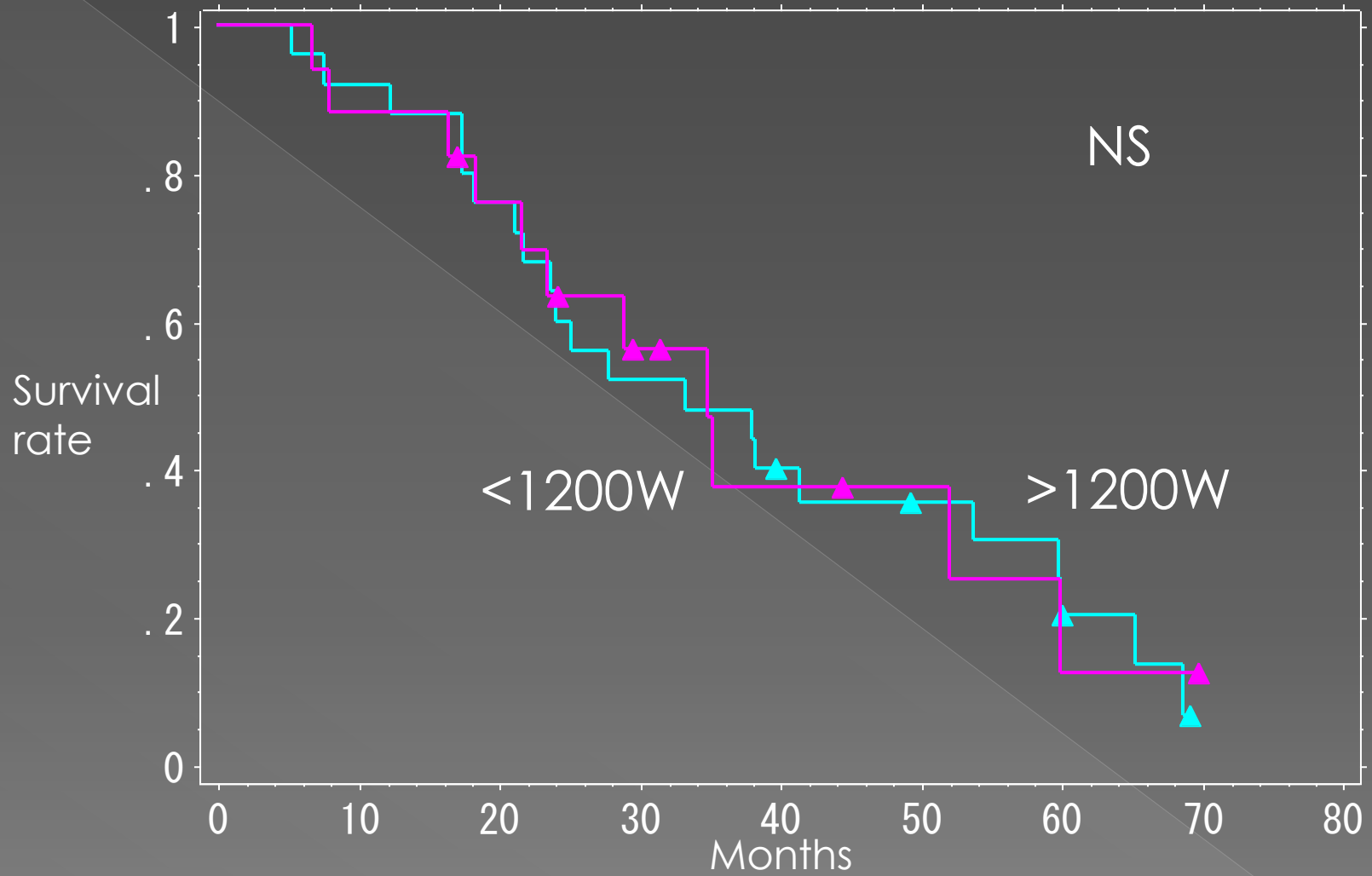


Fig. 6: Overall survival curve by RF output power

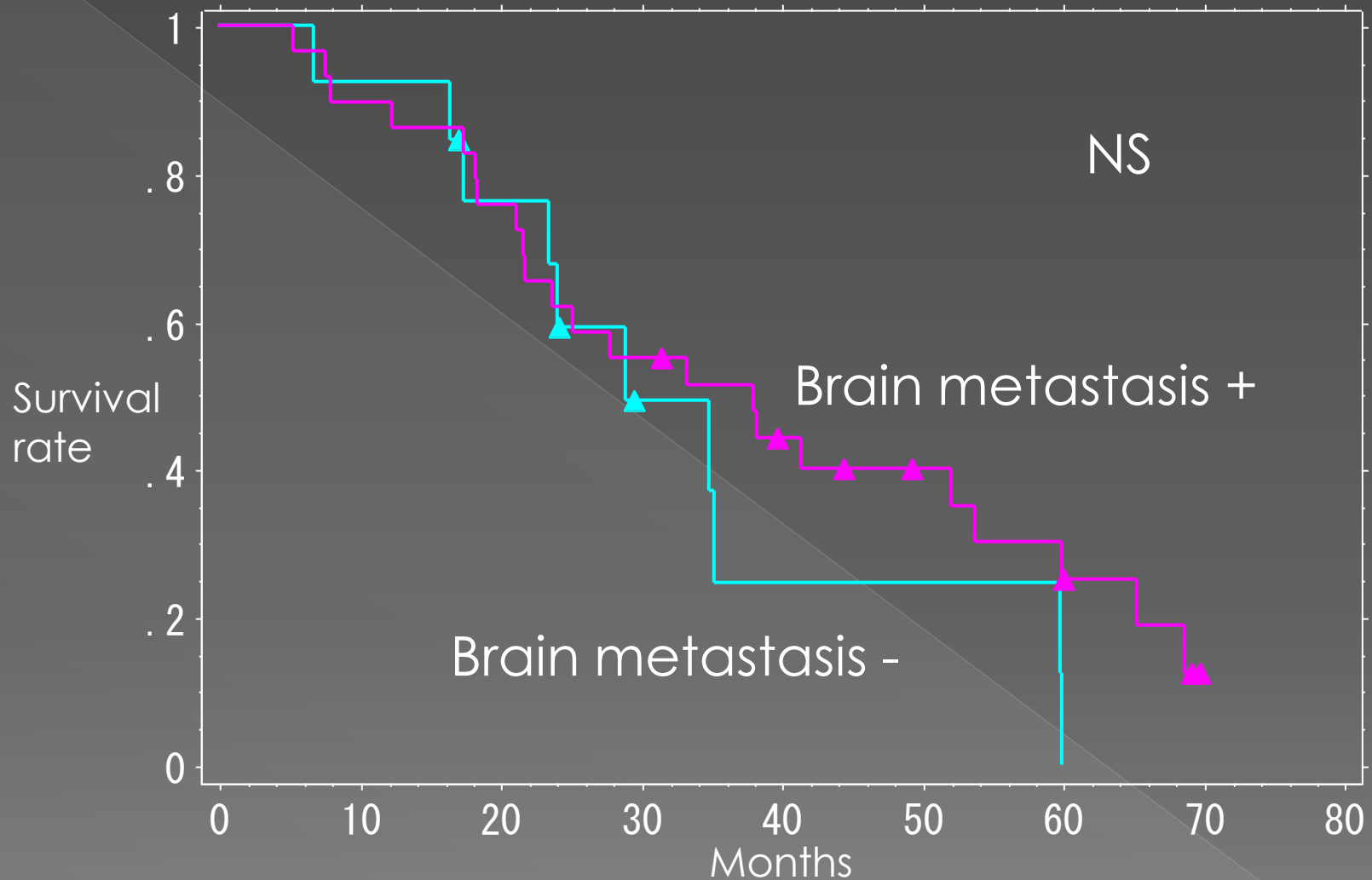


Fig. 7: Overall survival curve with or without brain metastasis

Results

- Good local response for first line chemo-hyperthermia using paclitaxel and carboplatin (7 CR, 22 PR and 13 SD) was obtained and the median time to progression of disease in the patients was 9.2 months (Table 1). No difference of local response was recognized in RF output power (Table 2).
- Median survival time was 34.9 months and 5 years survival rate was 26% (Fig. 1). No significantly difference in local response (CR+PR vs. SD) was recognized (Fig. 2).
- Fig. 3-7 show the results of univariate analysis for overall survival. Significantly difference was recognized in PS (PS 1 > PS 2) and histological type (adenoca > large cell) as shown in Fig. 4 and 5. No significantly difference was recognized in other factors.

Discussion 1

- We reported that the novel combined therapy of paclitaxel and carboplatin with HT and HBO may be a feasible and promising modality for treating NSCLC with multiple pulmonary metastases ¹⁾.
- Both HT and HBO might be potentially valuable due to their actions as chemo-sensitizers, so good local response for first line chemo-HT using paclitaxel and carboplatin might be obtained.
- Chemo-sensitization by HT was expected with relatively low RF output power in this study.

Discussion 2

- Relatively long median time to progression of disease (9.2 months) might be achieved (literally 4-5 months), because HT had the potential ability to reverse the chemotherapeutic drug resistance.
- For the pulmonary metastases of NSCLC that the extra-thoracic lesions are limited to metastases to brain, long term control might be expected by chemo-HT using paclitaxel and carboplatin plus HBO.

Conclusion

- ◉ Chemo-HT using paclitaxel and carboplatin plus HBO could contribute to a better clinical outcome in NSCLC patients with multiple pulmonary metastases.
- ◉ This combined therapy thus appears to be a feasible treatment modality and therefore warrants further investigation in regard to the effective treatment of NSCLC with multiple pulmonary metastases.