

日本語要約

- ◎ Ⅲ期の肺癌（非小細胞肺癌）を対象
- ◎ 放射線治療、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
- ◎ 46%で完全消失が得られ、50%以上の縮小を含めると奏効率は100%
- ◎ 全体の間接生存期間は36ヶ月、5年生存率は36%
- ◎ 集学的治療による良好な治療成績が証明された

Chemo-radiation using paclitaxel and carboplatin plus regional hyperthermia for stage III non-small cell lung cancer

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Backgrounds

- The purpose of this study was to evaluate the efficacy of chemoradiation using paclitaxel and carboplatin plus regional hyperthermia (HT) and hyperbaric oxygen therapy (HBO) for stage III non-small cell lung cancer (NSCLC).

Materials

- Between 2004-2012
- 28 patients of stage III primarily non-small cell lung cancer (IIIA: IIIB=13: 15)
- Age: 71.0 ± 8.7 , Male vs. Female=22: 6
- Performance status (PS) 1: 2=19: 9
- Pathological diagnosis
adenocarcinoma: SCC=22: 6

Radiotherapy

- Liniac 6MV X-ray
- 3D conformal radiotherapy
- Total dose: 66.6 ± 6.7 Gy

Chemotherapy

- PAC $60\text{mg}/\text{m}^2$ + CBDCA AUC 1-1.5
- Weekly administration
- 5-6 sessions during chemo-radiation

Hyperthermia

- All patients were received.
- 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 (HBO)

- 24 patients were received HBO.
- 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

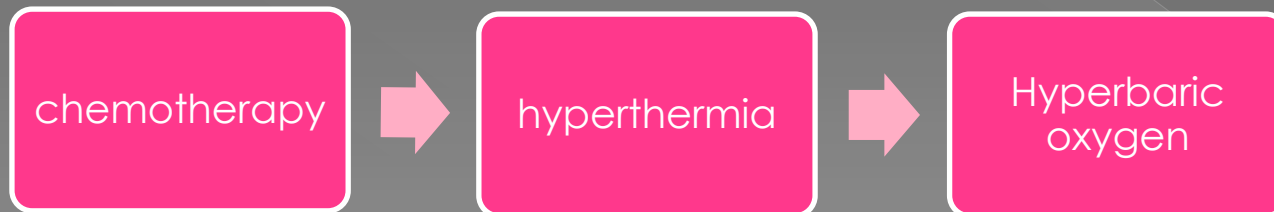


Table 1: Response rate

Response	No. of case	rate
CR	13/28	46%
PR	15/28	54%
CR+PR	28/28	100%

Table 2: Response rate by RF output power

Response	>1200W	<1200W
CR	5/13	8/13
PR	5/15	10/15

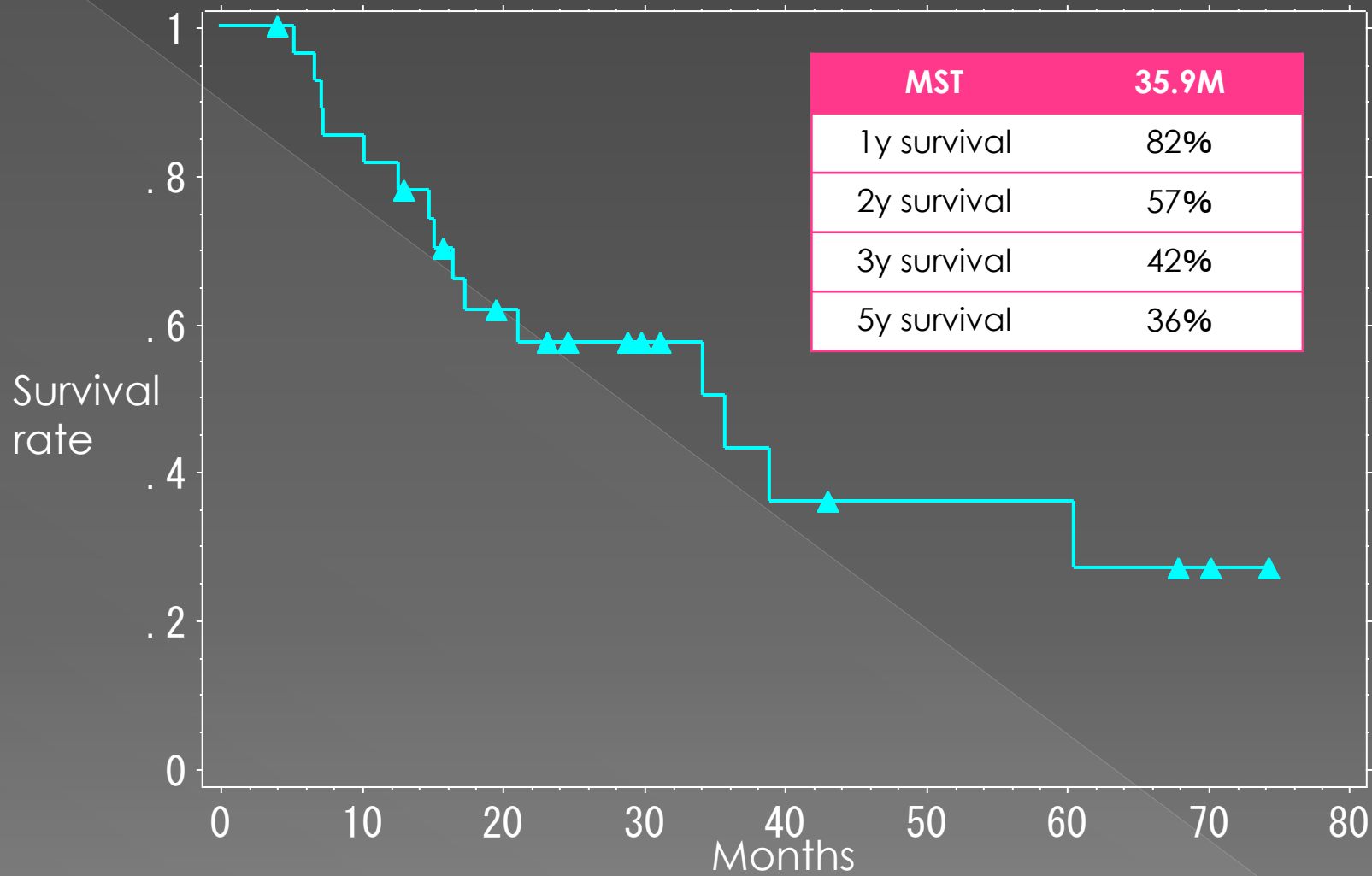


Fig. 1: Overall survival curve of all cases

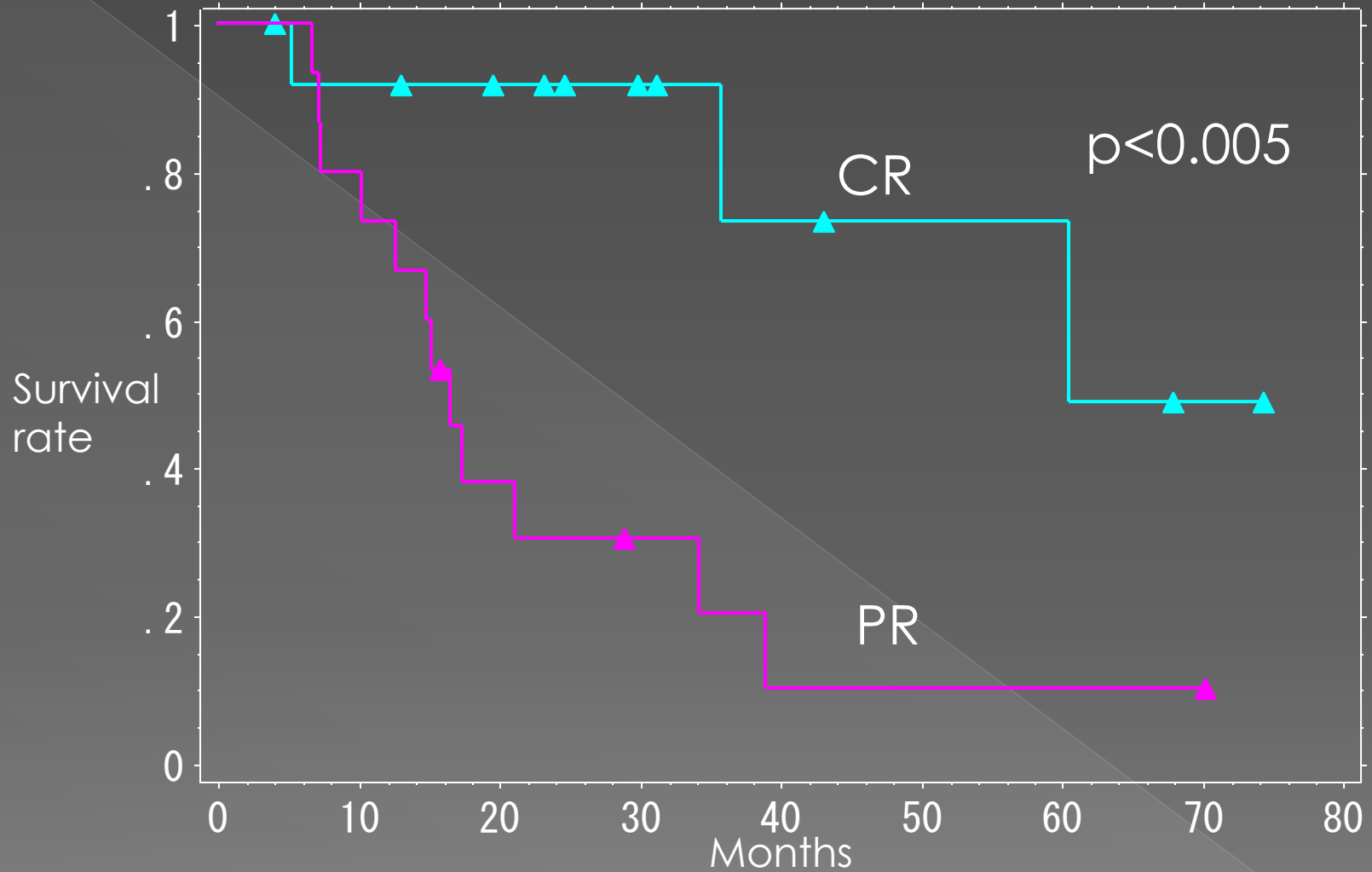


Fig. 2: Overall survival curve by local response

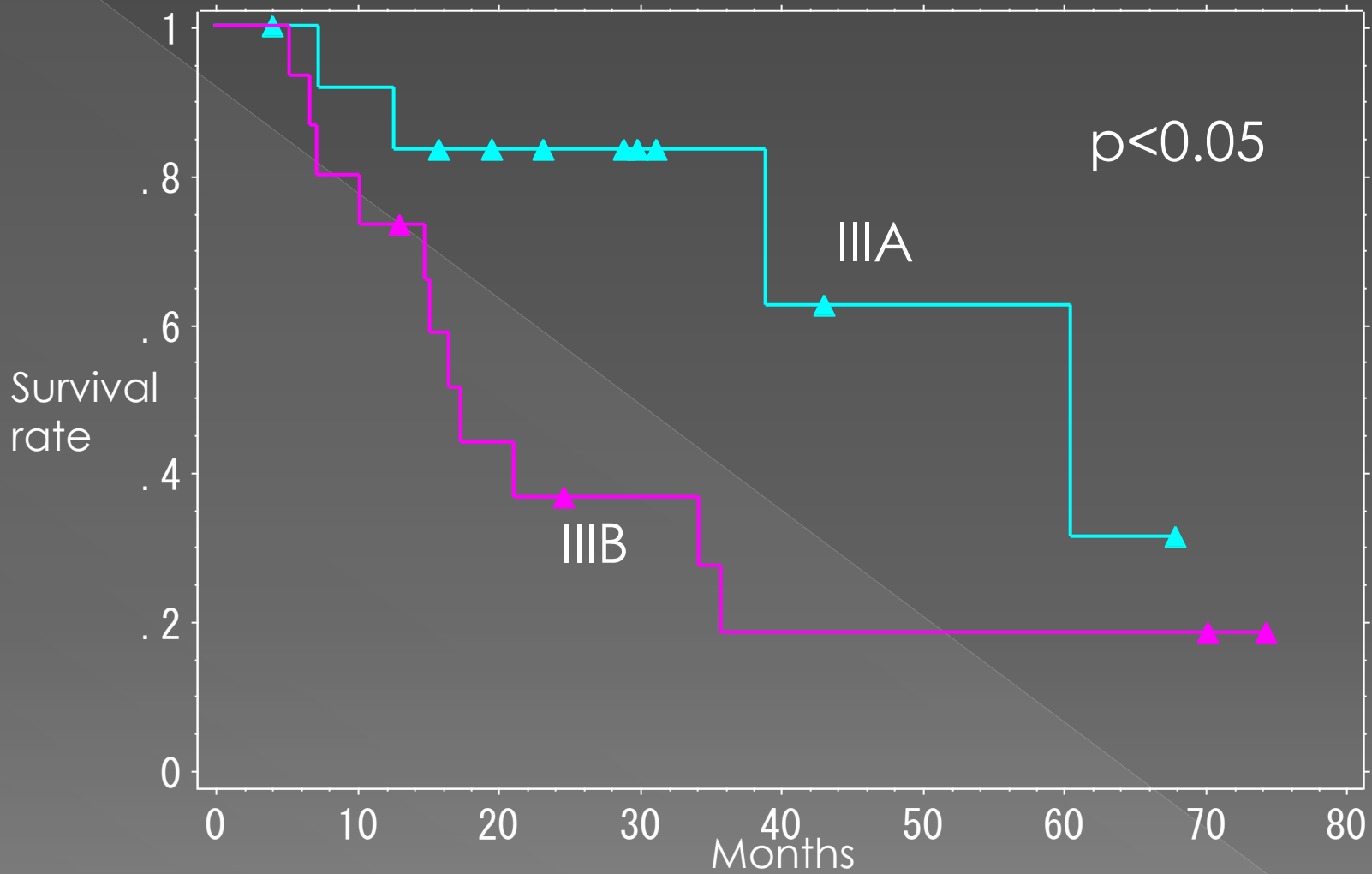


Fig. 3: Overall survival curve by stage

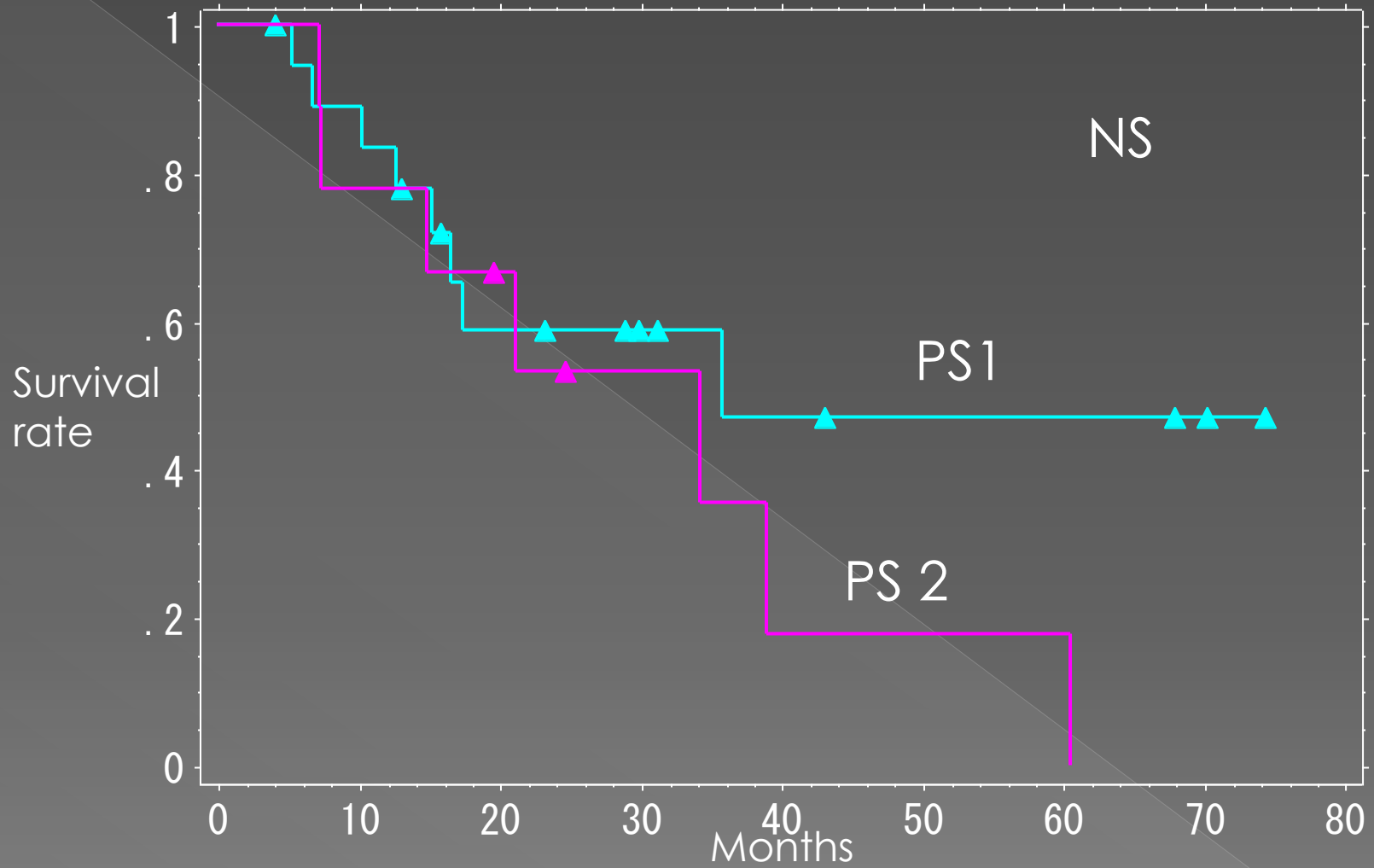


Fig. 4: Overall survival curve by PS

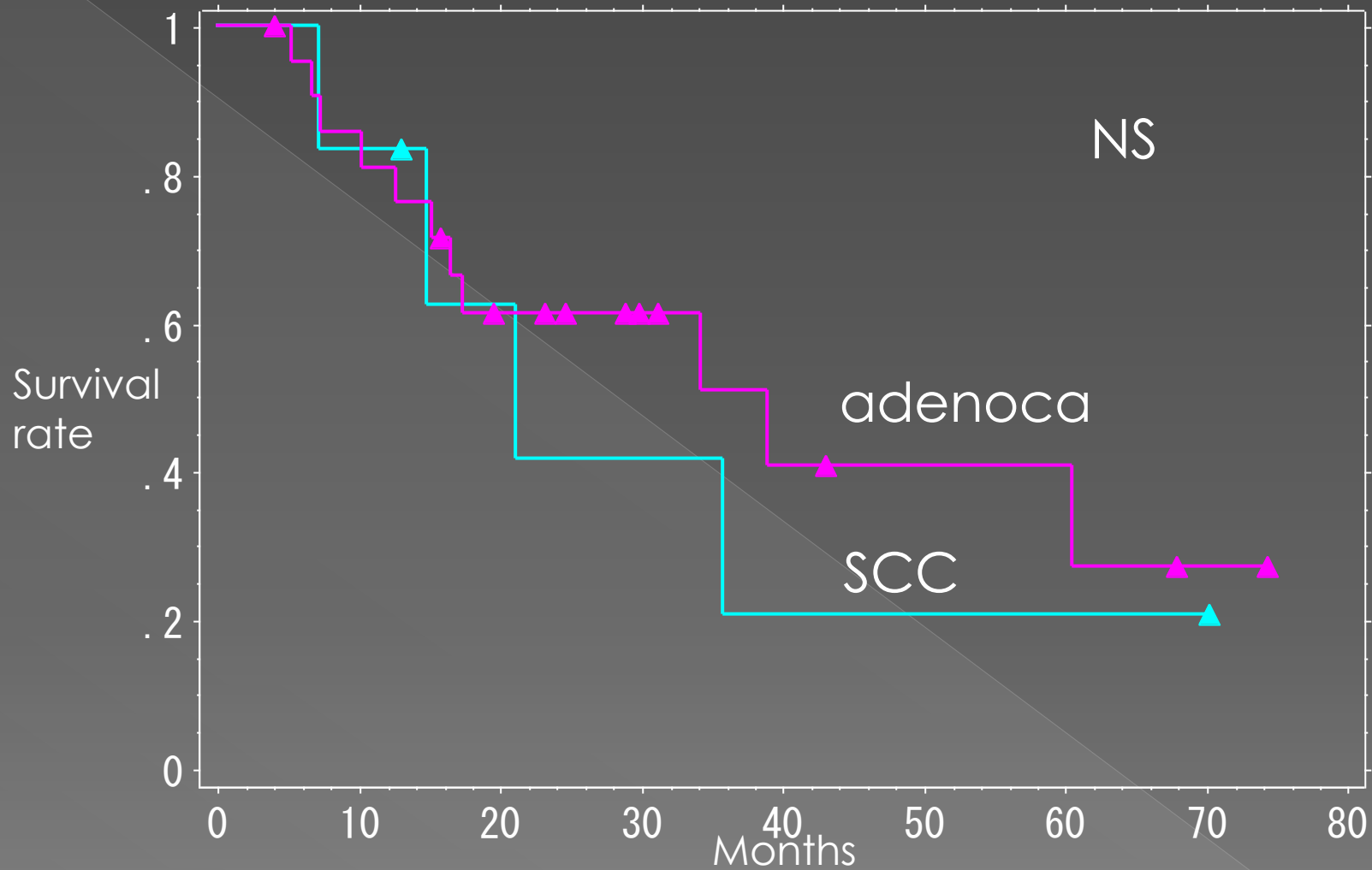


Fig. 5: Overall survival curve by pathology

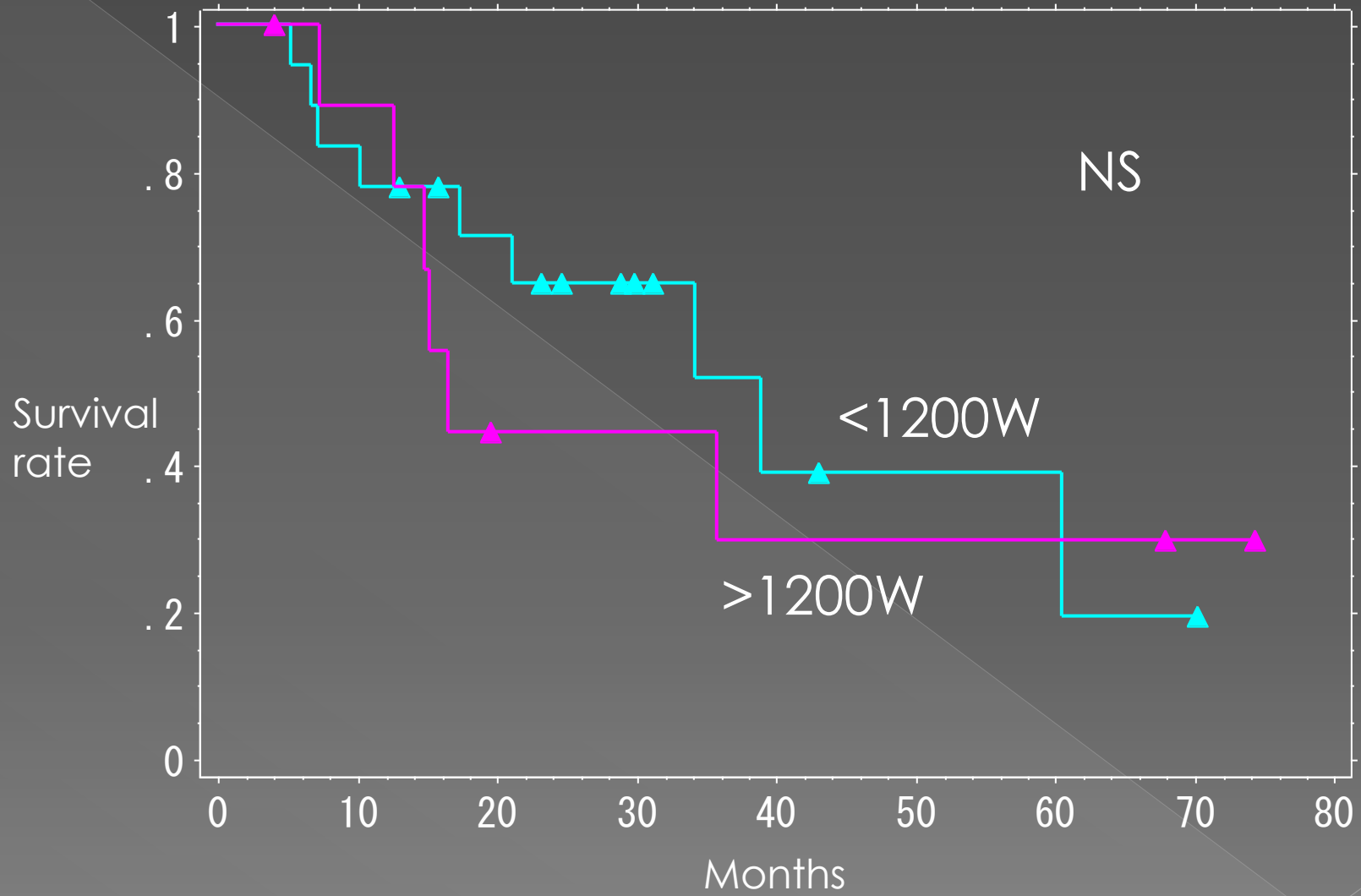


Fig. 6: Overall survival curve by RF output power

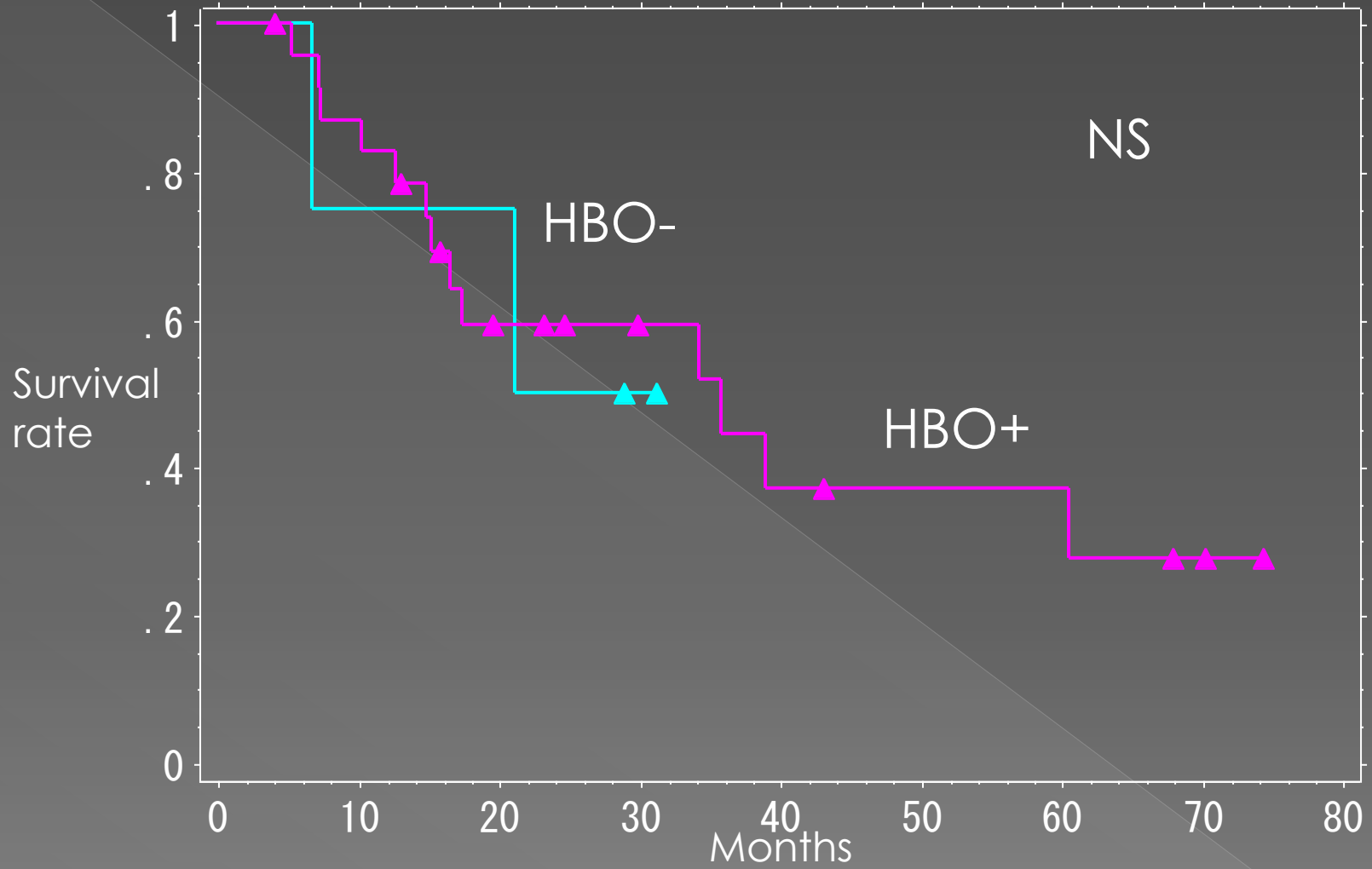


Fig. 7: Overall survival curve with or without HBO

Results

- All patients showed good response (13 CR and 15 PR), but no difference of local response was recognized in RF output power (Table 1 and 2).
- Median survival time was 35.9 months and 5 years survival rate was 36% (Fig. 1). Especially, CR group showed the better clinical outcome (5 years survival >70%) than PR (Fig. 2)
- Fig. 3-7 show the results of univariate analysis for overall survival. Significant difference was recognized in stage (IIIA > IIIB) as shown in Fig. 3. No significant difference was recognized in overall survival by PS, pathological, RF output power and HBO.

Discussion

- We reported that radiotherapy combined with HT using a higher RF output power could contribute to better clinical outcomes in patients with Stage III NSCLC¹⁾.
- In this study, chemo-radiation plus HT showed high response rate and better clinical outcomes. Response rate and overall survival was not difference by RF output power, so chemo-sensitization by HT was expected with relatively low RF output power.
- We reported that the novel combined therapy of paclitaxel and carboplatin with HT and HBO might be a feasible and promising modality for treating NSCLC with multiple pulmonary metastases ²⁾.
- In this study, contribution to a clinical outcome by HBO was uncertain because of few non-HBO cases.
- Multidisciplinary therapy including chemotherapy, radiotherapy, HT and HBO may be feasible for Stage III NSCLC.

1) Ohguri, et al: Int. J. Radat. Oncol. Biol. Phys. 73: 128-135, 2009

2) Ohguri, et al: Int. J. Hyperthermia, 25: 160-167, 2009

Conclusion

- Chemo-radiation using paclitaxel and carboplatin plus regional HT could contribute to a better clinical outcome in patients with stage III NSCLC.