

A Prospective Analysis of the Association between Skeletal-related Events and Quality of Life in Patients with Advanced Lung Cancer (CSP-HOR13)



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ABSTRACT

Background

We have reported the incidence of bone metastases (BM) and skeletal-related events (SREs) in patients with advanced lung cancer as a prospective study at the previous meeting, but there are still only a few reports on the association between SREs and quality of life (QOL). The aim of this study was to prospectively investigate how the QOL of patients with advanced lung cancer is affected by SREs.

Methods

The eligibility criteria were newly-diagnosed patients with stage III B or IV lung cancer, aged over 20 years, who had given written informed consent. The patients were closely followed up every four weeks to see if they developed SREs. QOL questionnaires were conducted at the time of enrollment, at three and twelve months later, and at one month after the onset of SREs, using EQ-5D and FACT-G, as well as the activity of daily living (ADL) scores by the Barthel Index. SREs are defined as pathologic fractures, radiation or surgery of bone lesions, spinal cord compression or hypercalcemia.

Results

In this study, altogether 274 patients were enrolled from April 2007 through December 2009. The median age was 68 years. Small cell/non-small cell = 77/197, stage III B/IV = 73/124, male/female = 193/81. The median follow-up period was 13.8 months. Among 78 patients with BM at enrollment, 24 patients already had SREs and another 12 developed SREs during the follow-up period. Among the 196 patients without initial BM, 16 developed SREs. Chronological analysis did not show statistically significant changes in the QOL in up to 268 patients in whom QOL evaluation was performed. QOL data were collected from 9 of 28 patients who developed SREs during the follow-up. In those nine patients, QOL scores fell by 0.05 in EQ5D and by 9.4 in FACT-G. ADL scores fell by 6.9 in the Barthel Index. Statistically, such a decline in QOL and ADL scores subsequent to SREs were not significant. Analysis of FACT-G, however, showed that the emotional functioning decreased by 4.76, which was statistically significant.

Conclusion

The QOL of patients with advanced lung cancer was not affected by SREs. However, evaluation by FACT-G revealed statistically significant decline in emotional functioning after SREs.

BACKGROUND

Skeletal-related events (SREs) are thought to have a negative impact on quality of life (QOL) in patients with lung cancer, but there have been few reports on the association between SREs and QOL.

PURPOSE

The aim of this study was to prospectively investigate how QOL is affected by SREs in patients with advanced lung cancer, as well as the incidence of bone metastases (BM) and SREs.

METHODS

Eligibility criteria

- Newly-diagnosed patients with all stages of SCLC and stage III B or IV NSCLC
- Age \geq 20 years
- Written informed consent

- SCLC: small cell lung cancer
- NSCLC: non-small cell lung cancer

Definition of SREs

- Pathologic fractures
- Radiation or surgery of bone lesions
- Spinal cord compression
- Hypercalcemia

METHODS

Staging of lung cancer

Chest and upper abdomen CT scan, bone scan or PET scan, brain CT or MRI scan were required.

During the follow up period

- Chest CT scan : every 3 months
- Brain CT or MRI scan : every 6 months
- Bone scan or PET scan : every 6 months
- The treatment for the lung cancer and the use of zoledronic acid were left to the discretion of the investigator
- QOL questionnaire was carried out at enrollment, and after 3 and 12 months

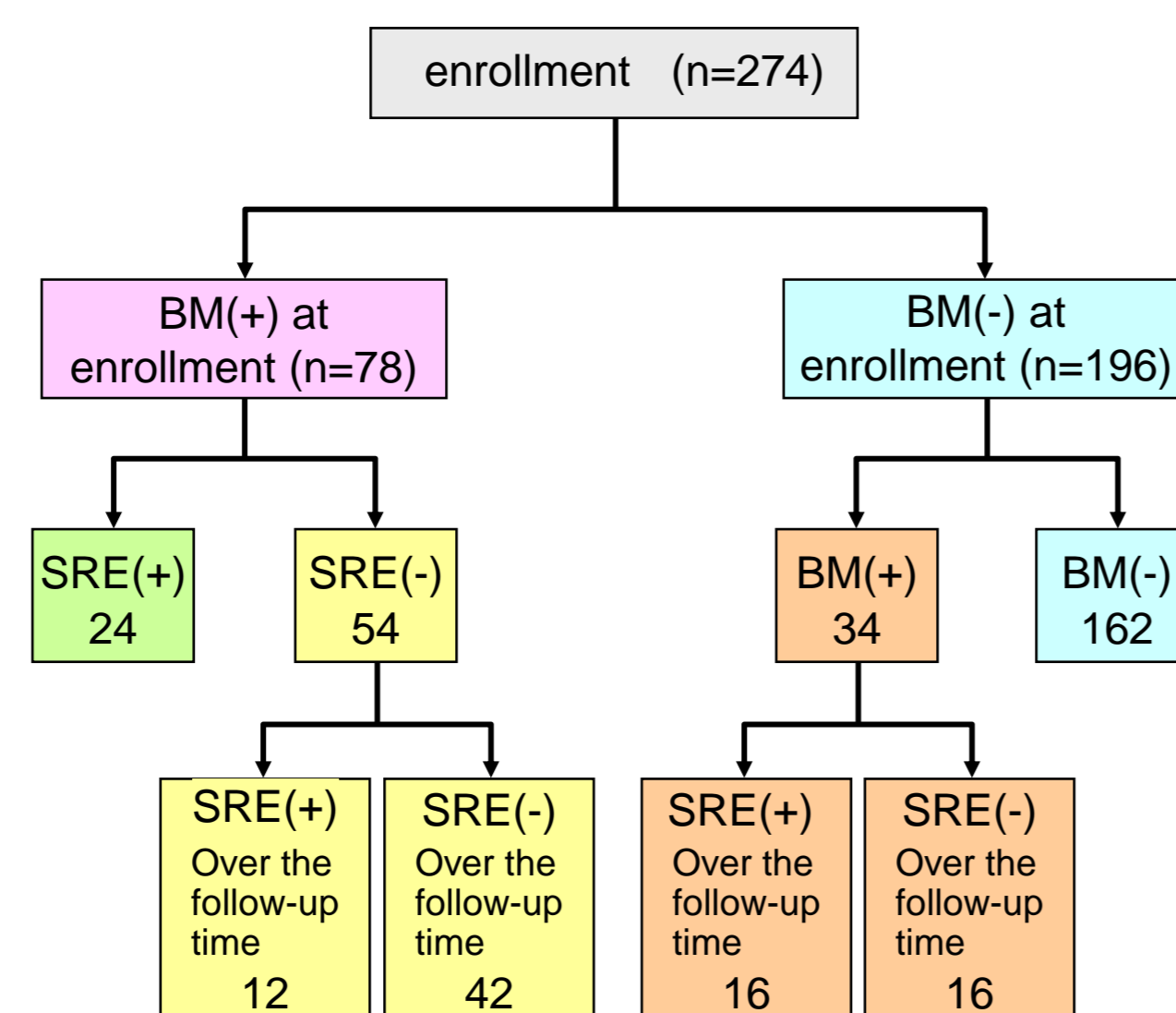
Timing and assessment tools of ADL and QOL

- EuroQOL-5 Dimension (EQ-5D)
- Functional Assessment of Cancer Therapy-General (FACT-G)
- Barthel Index

Table 1. Patients' Background

	NSCLC			SCLC	Total
	stage III B	stage IV			
n	73	124	77	274	
gender (Male/Female)	57/16	79/45	57/20	193/81	
age (Median) (Range)	69.0 (35-86)	67.0 (41-89)	69.0 (45-82)	68.0 (35-89)	
PS (ECOG)	0	22 (30.1)	31 (25.0)	23 (29.9)	76 (27.7)
	1	43 (58.9)	82 (66.1)	46 (59.7)	171 (62.4)
	2	7 (9.6)	8 (6.5)	8 (10.4)	23 (8.4)
	\geq 3	1 (1.4)	3 (2.4)	0 (0.0)	4 (1.5)
bone metastases	-	73 (100.0)	65 (52.4)	58 (75.3)	196 (71.5)
	+	0	59 (47.6)	19 (24.7)	78 (28.5)
SRE	-	73 (100.0)	104 (83.9)	73 (94.8)	250 (91.2)
	+	0	20 (16.1)	4 (5.2)	24 (8.8)

Fig 1. Enrollment and follow-up periods



RESULTS

QOL and ADL of the patients

- Chronological analysis did not show statistically significant differences in QOL and ADL in any patients in whom the QOL and ADL evaluation was performed.
- Changes in the QOL and ADL are summarized in Figures 2-a~2-c.

Fig 2-a. Changes in the EQ-5D of all patients

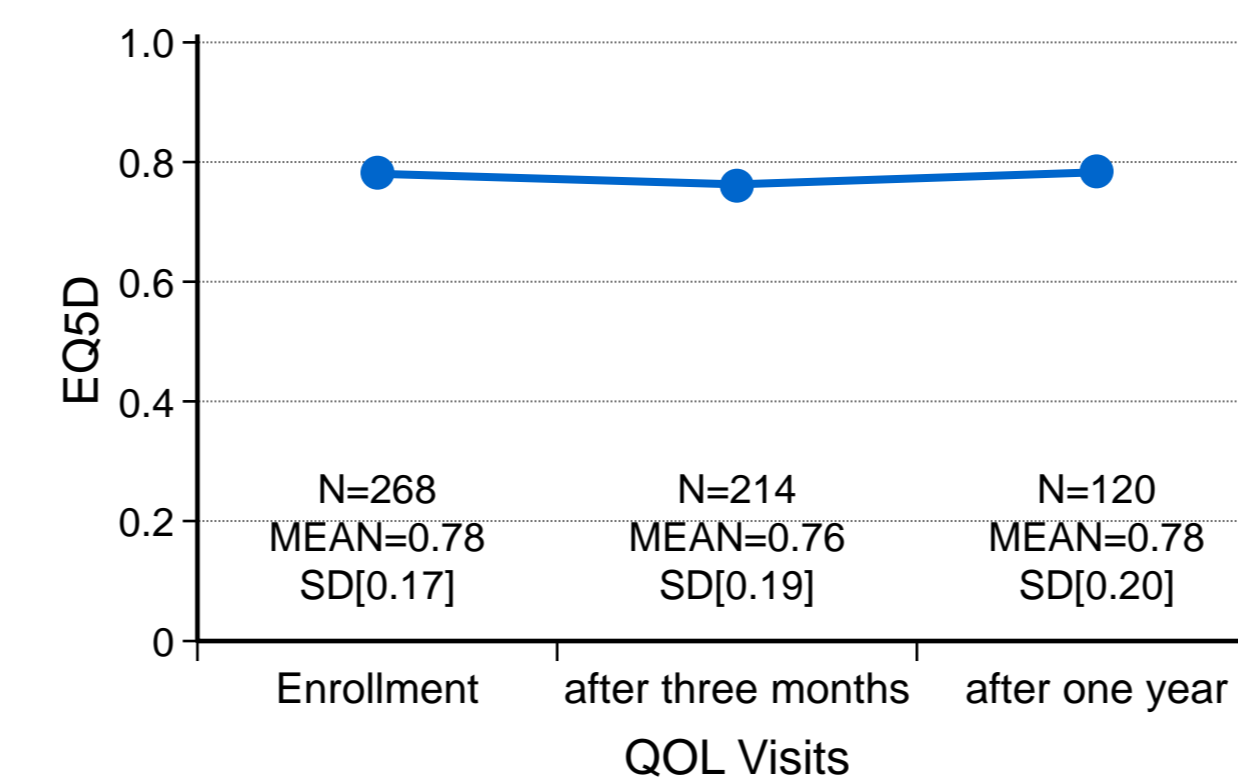


Fig 2-b. Changes in the FACT-G of all patients

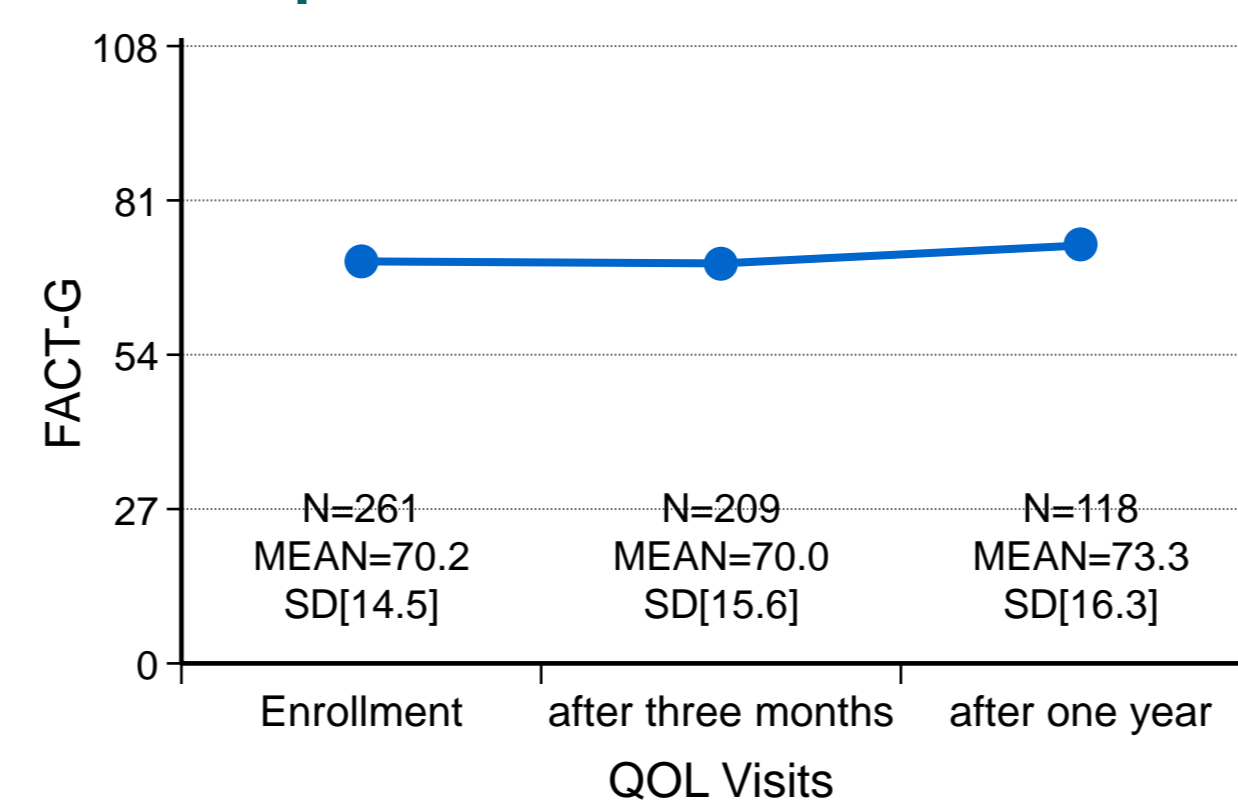
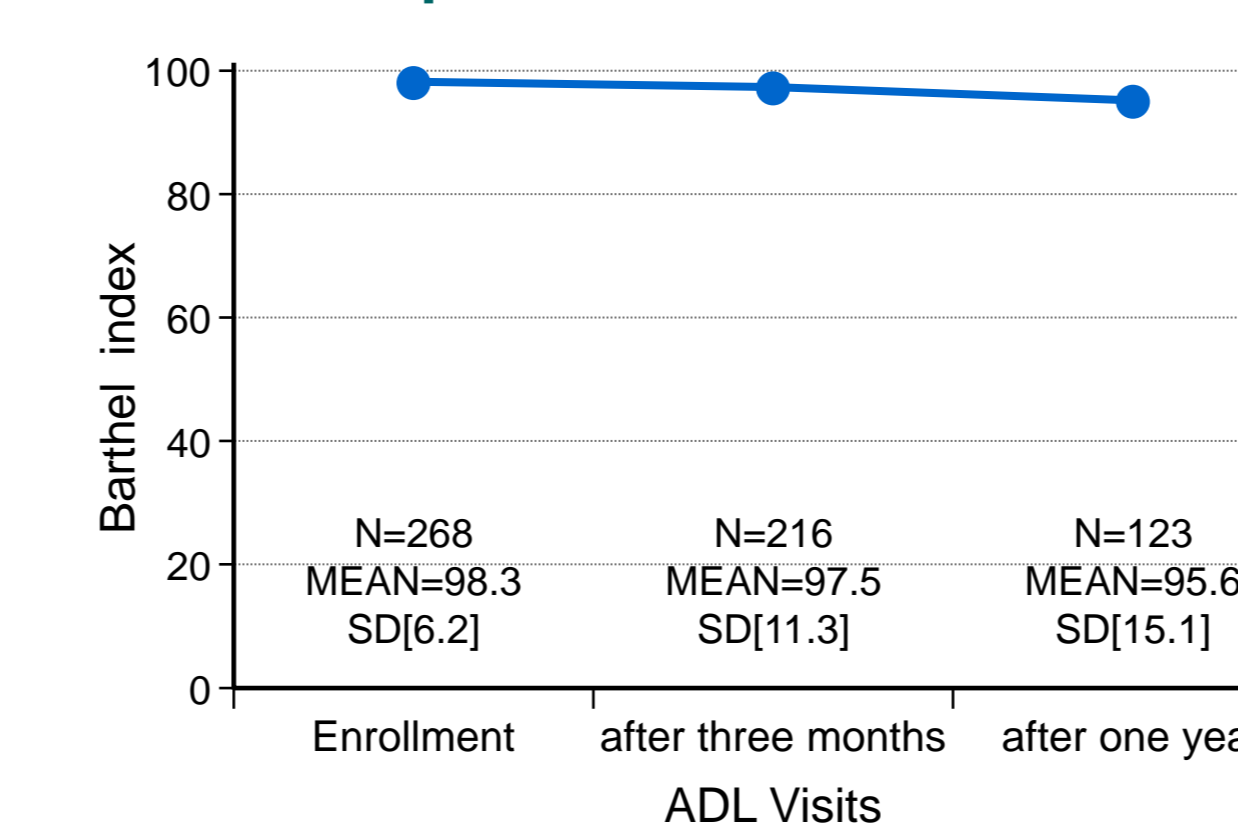


Fig 2-c. Changes in the Barthel index of all patients



RESULTS

QOL and ADL of the patients

- QOL data were collected in nine of 28 patients who had SREs during the follow-up.
- In those nine patients, QOL scores fell by 0.05 in EQ5D, by 9.4 in FACT-G, and by 6.9 in the Barthel Index.
- Changes in QOL after SREs are summarized in Figure 3-a~3-c.

Fig3-a. Changes in the EQ-5D after SREs

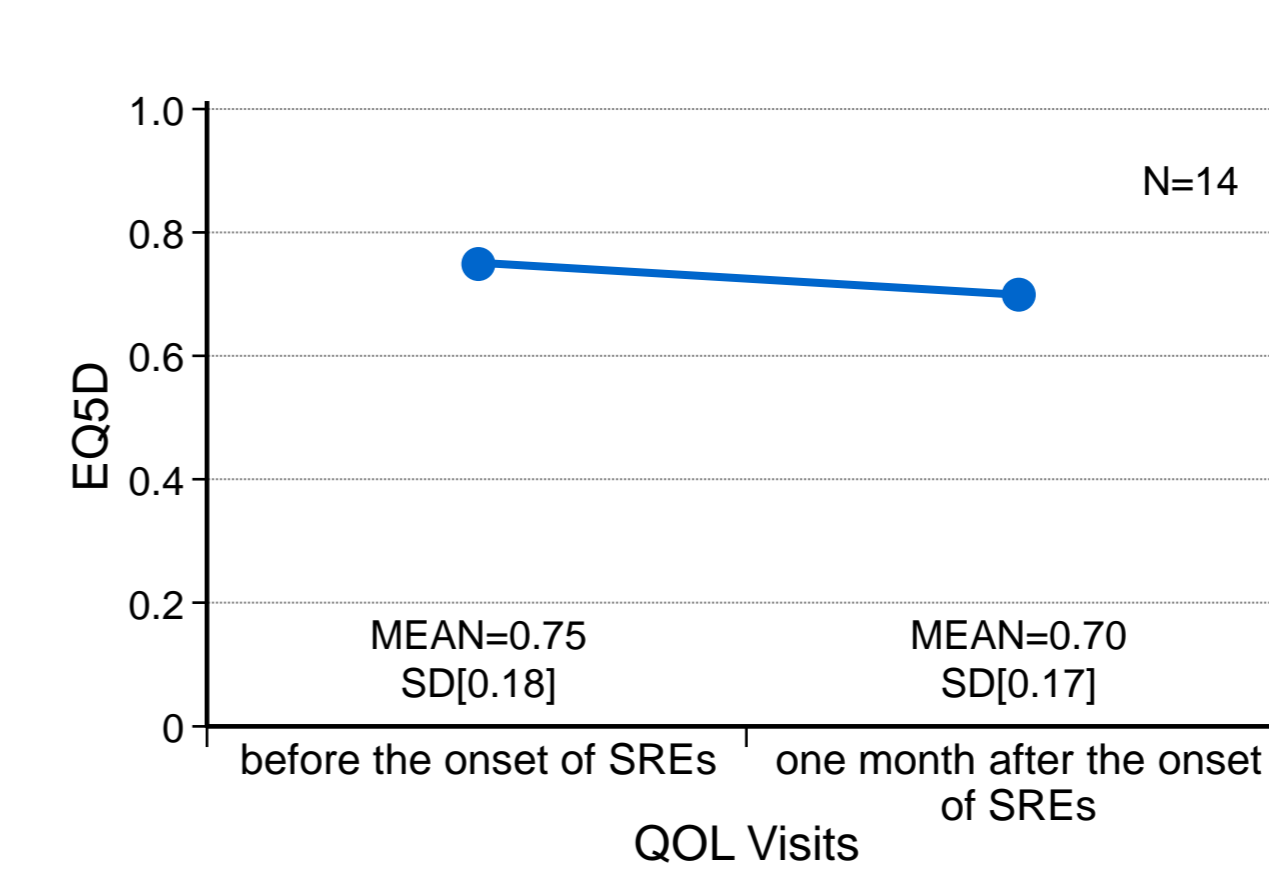


Fig 3-b. Changes in the FACT-G after the SREs

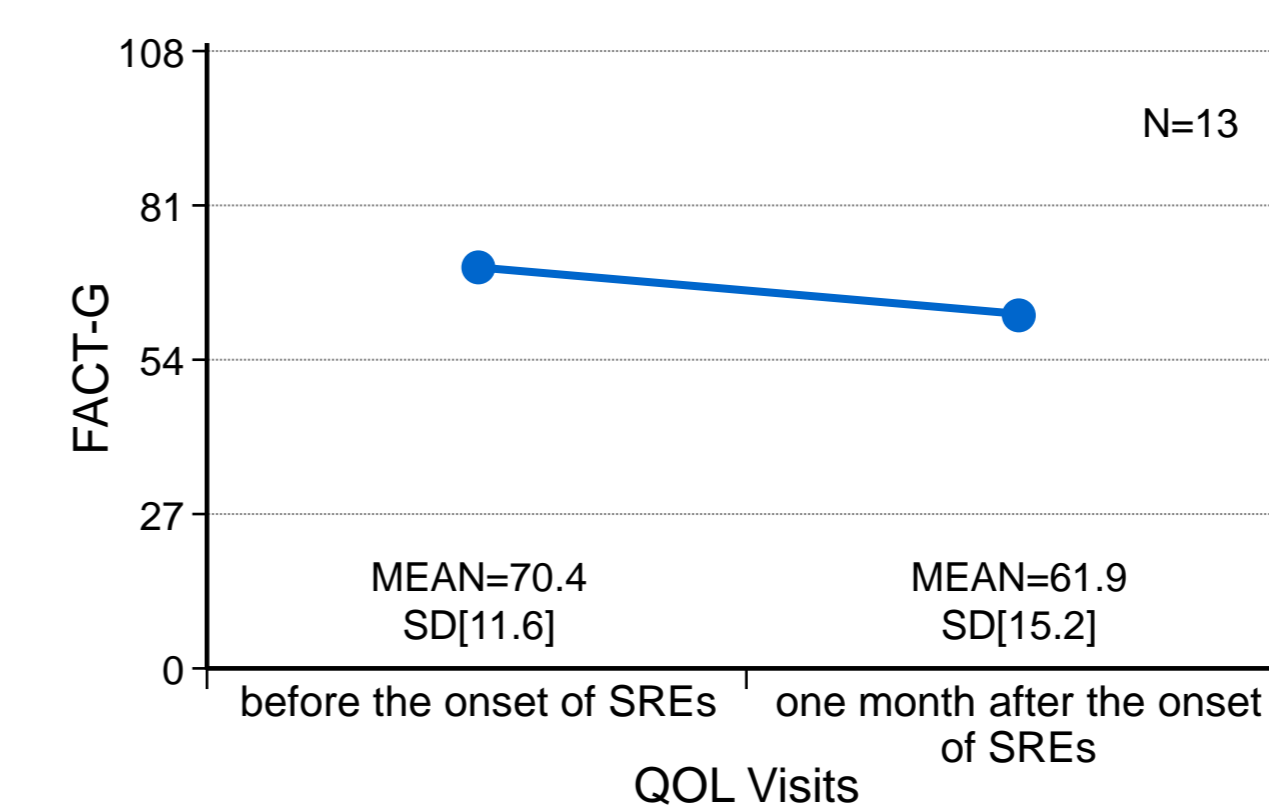
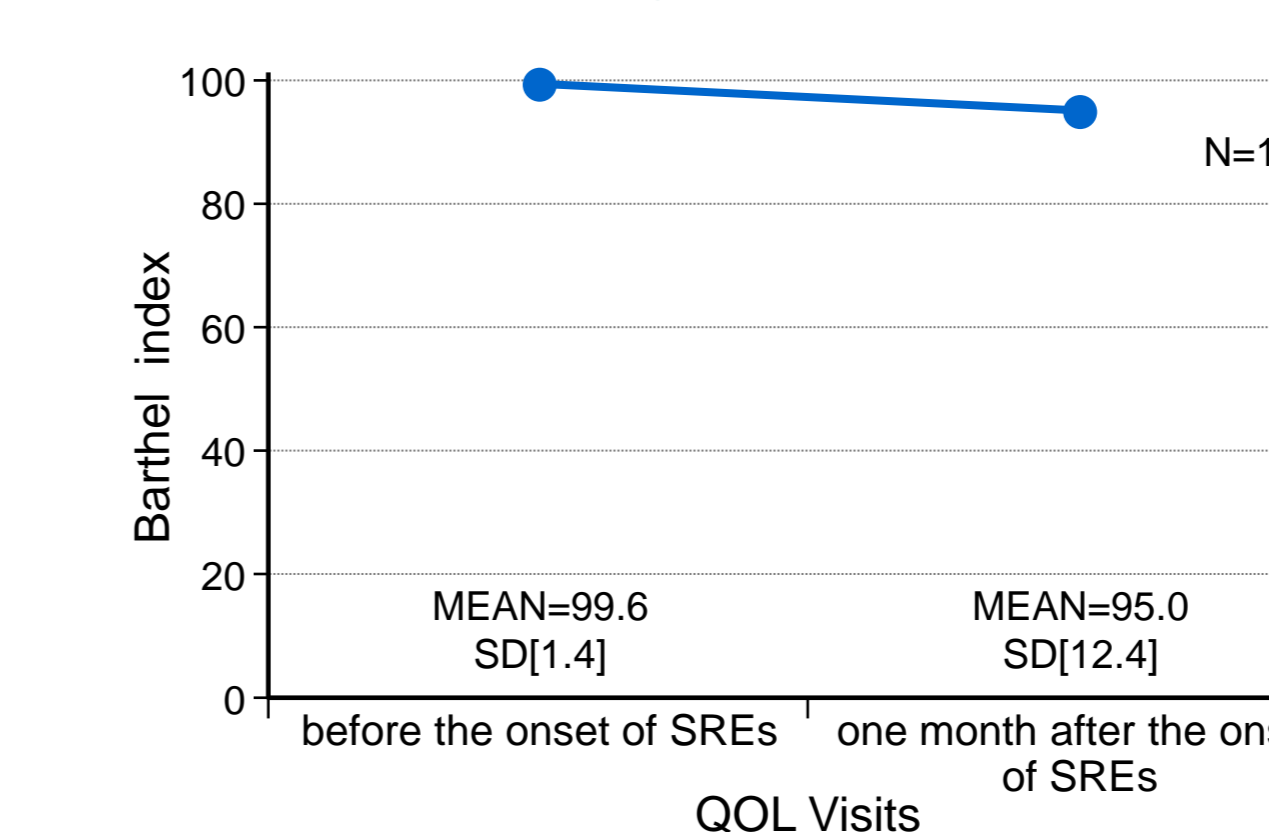


Fig 3-c. Changes in the Barthel index after the SREs



RESULTS

QOL of the patients

- Analysis of the four FACT-G factors (physical, social/family, emotional, functional), however, showed that the emotional factor decreased by 4.76, which was statistically significant.

Fig 4. Changes in the FACT-G by four factors after the SREs

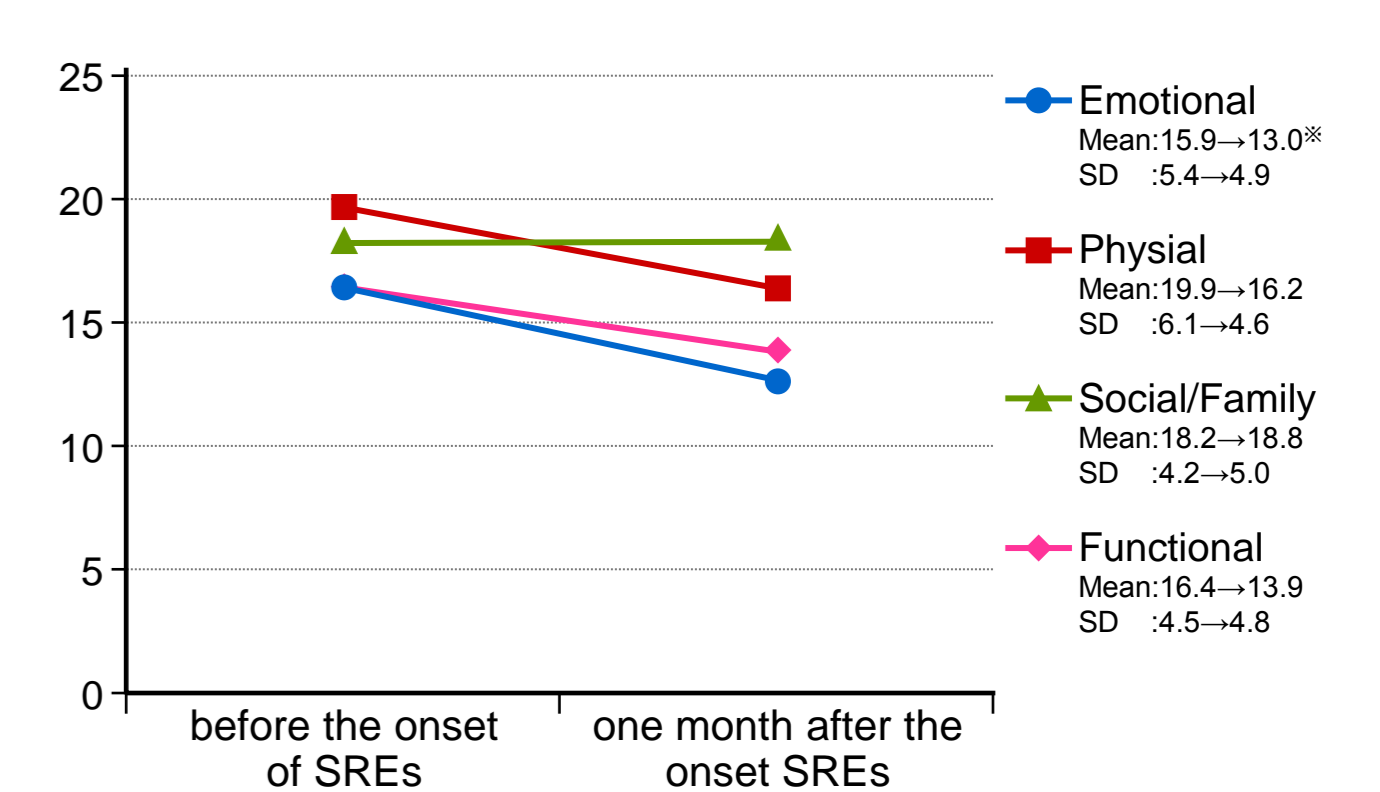


Table 2. Type of SREs

	Already had SREs at enrollment		Developed SREs during the follow-up		Total	
	N	%	N	%	N	%
Pathologic fracture	9	3.3	5	1.8	14	5.1
Radiation of bone lesions	22	8.0	23	8.4	45	16.4
Spinal code compression	2	0.7	1	0.4	3	1.1
Hypercalcemia of malignancy	1	0.04	5	1.8	6	2.2
Total	24	8.8	28	10.2	52	19.0

CONCLUSIONS

- The total QOL of patients with advanced lung cancer was not affected by SREs. However, the evaluation by FACT-G revealed a statistically significant decline in emotional functioning after SREs.

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