

Supplementary Table 1. Comparisons of Cognitive Functions and Other Outcomes at T0 between Those Who Underwent Radiotherapy and Those Who Did Not

	Those Who Underwent Radiotherapy (n = 13)	Those Who Did Not Undergo Radiotherapy (n = 17)	Statistics
DEX-S <sup>1)</sup> total scores, mean ± SD	15.0±10.0	9.5±8.3	U=71.0, p=0.10
DEX-I <sup>2)</sup> total scores, mean ± SD	13.2±12.7	5.12±12.0	U=65.0, p=0.053
BADS <sup>3)</sup> total scores, mean ± SD	17.7±3.7	18.2±3.7	U=92.0, p=0.44
EMC-S <sup>4)</sup> total scores, mean ± SD	9.0±6.6	6.5±4.7	U=84.5, p=0.28
EMC-I <sup>5)</sup> total scores, mean ± SD	6.7±5.3	2.9±5.3	U=59.0, p=0.03
RBMT <sup>6)</sup> total scores, mean ± SD	22.0±2.6	21.9±2.1	U=100.0, p=0.65
CFQ <sup>7)</sup> total scores, mean ± SD	27.6±11.8	27.5±11.0	U=101.0, p=0.69
LNS <sup>8)</sup> scores, mean ± SD	12.7±2.6	13.8±2.6	U=77.5, p=0.16
VMS <sup>9)</sup> forward scores, mean ± SD	9.6±2.3	10.6±1.5	U=82.0, p=0.22
VMS backward scores, mean ± SD	8.8±1.3	9.8±1.5	U=70.0, p=0.08
CAS <sup>10)</sup> scores, mean ± SD	0.4±1.0	0.2±0.5	U=105.0, p=0.70
MADRS <sup>11)</sup> total scores, mean ± SD	3.1±2.8	4.4±2.7	U=85.0, p=0.28
HAM-A <sup>12)</sup> total scores, mean ± SD	7.3±4.7	5.8±3.9	U=97.0, p=0.57
BFI <sup>13)</sup> scores, mean ± SD	21.2±20.3	21.5±17.6	U=103.5, p=0.77
FACT-B <sup>14)</sup> total scores, mean ± SD	97.9±18.0	96.7±12.4	U=108.5, p=0.93
Hb <sup>15)</sup> levels, mean ± SD	12.0±0.7	11.3±0.9	U=65.5, p=0.06
TNF- <sup>16)</sup> levels, mean ± SD	67.3±186.3	12.3±7.4	U=86.0, p=0.64

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive

Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha

Supplementary Table 2. Comparisons of Cognitive Functions and Other Outcomes at T1 between Those Who Underwent Radiotherapy and Those Who Did Not

	Those Who Underwent Radiotherapy (n = 13)	Those Who Did Not Undergo Radiotherapy (n = 17)	Statistics
DEX-S <sup>1)</sup> total scores, mean ± SD	11.4±6.2	8.4±8.4	U=75.0, p=0.14
DEX-I <sup>2)</sup> total scores, mean ± SD	10.5±11.7	4.6±5.7	U=78.5, p=0.17
BADS <sup>3)</sup> total scores, mean ± SD	18.8±3.1	18.5±3.9	U=100.5, p=0.67
EMC-S <sup>4)</sup> total scores, mean ± SD	8.2±4.0	6.4±4.5	U=78.0, p=0.17
EMC-I <sup>5)</sup> total scores, mean ± SD	4.5±3.7	2.7±3.8	U=77.5, p=0.16
RBMT <sup>6)</sup> total scores, mean ± SD	22.0±1.6	22.1±1.8	U=104.0, p=0.78
CFQ <sup>7)</sup> total scores, mean ± SD	29.0±10.2	25.3±9.9	U=88.5, p=0.36
LNS <sup>8)</sup> scores, mean ± SD	12.8±2.6	14.4±2.9	U=68.0, p=0.07
VMS <sup>9)</sup> forward scores, mean ± SD	9.8±1.4	10.5±1.7	U=84.5, p=0.27
VMS backward scores, mean ± SD	9.0±1.7	9.5 ±1.6	U=93.5, p=0.47
CAS <sup>10)</sup> scores, mean ± SD	0.1±0.3	0.1±0.2	U=108.5, p=0.85
MADRS <sup>11)</sup> total scores, mean ± SD	4.5±2.9	3.6±2.8	U=86.5, p=0.31
HAM-A <sup>12)</sup> total scores, mean ± SD	7.4±4.9	5.7±4.4	U=83.0, p=0.25
BFI <sup>13)</sup> scores, mean ± SD	18.8±17.4	13.4±15.1	U=88.5, p=0.36
FACT-B <sup>14)</sup> total scores, mean ± SD	102.1±17.1	103.6±17.6	U=107.0, p=0.88
Hb <sup>15)</sup> levels, mean ± SD	13.0±0.8	12.2±1.2	U=64.0, p=0.051
TNF- <sup>16)</sup> levels, mean ± SD	25.0±49.3	11.1±6.8	U=95.0, p=0.69

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive

Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha

Supplementary Table 3. Comparisons of Changes in Cognitive Functions and Other Outcomes between Those Who Underwent Radiotherapy and Those Who Did Not

	Those Who Underwent Radiotherapy (n = 13)	Those Who Did Not Undergo Radiotherapy (n = 17)	Statistics
DEX-S <sup>1)</sup> total scores, mean ± SD	-3.6±6.5	-1.1±4.3	U=70.0, p=0.09
DEX-I <sup>2)</sup> total scores, mean ± SD	-2.7±5.8	-0.5±4.1	U=93.5, p=0.47
BADS <sup>3)</sup> total scores, mean ± SD	1.1±2.7	0.2±2.1	U=88.0, p=0.34
EMC-S <sup>4)</sup> total scores, mean ± SD	-0.8±4.6	-0.2±3.9	U=107.5, p=0.90
EMC-I <sup>5)</sup> total scores, mean ± SD	-2.2±4.1	-0.2±2.2	U=88.5, p=0.34
RBMT <sup>6)</sup> total scores, mean ± SD	0.0±2.2	0.2±2.1	U=108.5, p=0.93
CFQ <sup>7)</sup> total scores, mean ± SD	1.4±8.2	-2.2±9.1	U=74.5, p=0.13
LNS <sup>8)</sup> scores, mean ± SD	0.2±2.8	0.6±1.7	U=89.5, p=0.37
VMS <sup>9)</sup> forward scores, mean ± SD	0.2±1.7	-0.1±0.9	U=104.5, p=0.79
VMS backward scores, mean ± SD	0.2 ±1.8	-0.4±1.3	U=99.5, p=0.64
CAS <sup>10)</sup> scores, mean ± SD	-0.3±0.8	-0.1±0.6	U=100.0, p=0.50
MADRS <sup>11)</sup> total scores, mean ± SD	1.5±4.6	-0.7±3.2	U=81.5, p=0.22
HAM-A <sup>12)</sup> total scores, mean ± SD	0.1±6.1	-0.1±4.4	U=92.0, p=0.44
BFI <sup>13)</sup> scores, mean ± SD	-2.5±24.1	-8.1±15.9	U=101.5, p=0.71
FACT-B <sup>14)</sup> total scores, mean ± SD	4.3±13.0	6.8±11.8	U=99.5, p=0.65
Hb <sup>15)</sup> levels, mean ± SD	1.1±1.2	0.9±0.9	U=97.0, p=0.57
TNF- <sup>16)</sup> levels, mean ± SD	-37.1±131.6	-1.1±2.0	U=109.5, p=0.97

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive

Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha

Supplementary Table 4. Comparisons of Cognitive Functions and Other Outcomes at T0 between Those Who Underwent Hormone Therapy during This Study and Those Who Did Not

	Those Who Underwent Hormone Therapy (n = 18)	Those Who Did Not Undergo Hormone Therapy (n = 9)	Statistics
<b>DEX-S<sup>1)</sup> total scores, mean ± SD</b>	<b>14.8±9.1</b>	<b>4.7±4.1</b>	<b>U=24.5, p=0.004</b>
DEX-I <sup>2)</sup> total scores, mean ± SD	11.3±11.9	4.3±5.5	U=55.5, p=0.18
BADS <sup>3)</sup> total scores, mean ± SD	18.2±2.6	17.0±6.0	U=75.5, p=0.78
EMC-S <sup>4)</sup> total scores, mean ± SD	8.7±6.0	4.6±3.0	U=43.0, p=0.049
EMC-I <sup>5)</sup> total scores, mean ± SD	5.1±5.8	3.0±3.5	U=70.5, p=0.58
RBMT <sup>6)</sup> total scores, mean ± SD	22.1±2.7	21.8±1.7	U=60.5, p=0.28
CFQ <sup>7)</sup> total scores, mean ± SD	28.9±10.4	22.3±8.0	U=44.5, p=0.06
LNS <sup>8)</sup> scores, mean ± SD	13.2±2.6	13.7±2.8	U=59.5, p=0.26
VMS <sup>9)</sup> forward scores, mean ± SD	10.4±1.9	10.2±2.0	U=75.5, p=0.77
VMS backward scores, mean ± SD	9.4 ±1.6	9.4 ±1.4	U=81.0, p=1.00
CAS <sup>10)</sup> scores, mean ± SD	0.3±0.8	0.2±0.7	U=76.5, p=0.71
MADRS <sup>11)</sup> total scores, mean ± SD	4.3±2.5	3.6±3.5	U=67.0, p=0.47
HAM-A <sup>12)</sup> total scores, mean ± SD	7.2±4.6	5.1±3.8	U=63.0, p=0.35
BFI <sup>13)</sup> scores, mean ± SD	20.7±18.5	23.6±21.5	U=74.0, p=0.72
FACT-B <sup>14)</sup> total scores, mean ± SD	97.3±12.6	97.1±21.1	U=78.5, p=0.90
Hb <sup>15)</sup> levels, mean ± SD	11.8±0.8	11.2±1.1	U=52.5, p=0.14
TNF- <sup>16)</sup> levels, mean ± SD	53.7±161.3	12.2±10.1	U=45.5, p=0.13

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha



Supplementary Table 5. Comparisons of Cognitive Functions and Other Outcomes at T1 between Those Who Underwent Hormone Therapy during This Study and Those Who Did Not

	Those Who Underwent Hormone Therapy (n = 18)	Those Who Did Not Undergo Hormone Therapy (n = 9)	Statistics
DEX-S <sup>1)</sup> total scores, mean ± SD	10.9±7.1	4.6±3.9	U=40.0, p=0.04
DEX-I <sup>2)</sup> total scores, mean ± SD	8.7±10.8	4.7±5.9	U=66.0, p=0.43
BADS <sup>3)</sup> total scores, mean ± SD	19.0±2.5	17.2±5.0	U=71.0, p=0.60
EMC-S <sup>4)</sup> total scores, mean ± SD	7.7±4.7	4.9±2.5	U=49.5, p=0.10
EMC-I <sup>5)</sup> total scores, mean ± SD	3.4±3.7	3.2±4.4	U=74.0, p=0.71
RBMT <sup>6)</sup> total scores, mean ± SD	22.2±1.5	21.9±2.2	U=77.5, p=0.85
<b>CFQ<sup>7)</sup> total scores, mean ± SD</b>	<b>29.3±9.7</b>	<b>18.8±6.4</b>	<b>U=29.5, p=0.01</b>
LNS <sup>8)</sup> scores, mean ± SD	14.1±2.7	13.7±3.0	U=77.5, p=0.86
VMS <sup>9)</sup> forward scores, mean ± SD	10.5±1.8	10.2±1.3	U=76.0, p=0.79
VMS backward scores, mean ± SD	9.3±1.5	9.6 ±2.0	U=79.0, p=0.92
CAS <sup>10)</sup> scores, mean ± SD	0.1±0.2	0.0±0.0	U=76.5, p=0.48
MADRS <sup>11)</sup> total scores, mean ± SD	4.3±3.1	3.8±2.9	U=75.0, p=0.76
HAM-A <sup>12)</sup> total scores, mean ± SD	6.8±4.9	4.2±3.2	U=53.5, p=0.16
BFI <sup>13)</sup> scores, mean ± SD	13.7±10.4	17.1±20.1	U=78.0, p=0.88
FACT-B <sup>14)</sup> total scores, mean ± SD	103.6±14.6	104.2±22.2	U=73.5, p=0.7
Hb <sup>15)</sup> levels, mean ± SD	12.8±0.8	12.2±1.7	U=66.0, p=0.44
TNF- <sup>16)</sup> levels, mean ± SD	22.3±43.0	11.1±9.3	U=59.5, p=0.36

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha

Supplementary Table 6. Comparisons of Changes from T0 to T1 in Cognitive Functions and Other Outcomes between Those Who Underwent Hormone Therapy during This Study and Those Who Did Not

	Those Who Underwent Hormone Therapy (n = 18)	Those Who Did Not Undergo Hormone Therapy (n = 9)	Statistics
DEX-S <sup>1)</sup> total scores, mean ± SD	-3.8±6.0	-0.1±2.3	U=45.0, p=0.06
DEX-I <sup>2)</sup> total scores, mean ± SD	-2.6±6.1	0.3±1.1	U=61.5, p=0.31
BADS <sup>3)</sup> total scores, mean ± SD	0.8±2.3	0.2±2.3	U=68.0, p=0.49
EMC-S <sup>4)</sup> total scores, mean ± SD	-1.0±5.0	0.3±1.5	U=62.0, p=0.32
EMC-I <sup>5)</sup> total scores, mean ± SD	-1.6±3.8	0.2±1.8	U=65.0, p=0.39
RBMT <sup>6)</sup> total scores, mean ± SD	0.2±2.4	0.1±1.7	U=78.0, p=0.87
CFQ <sup>7)</sup> total scores, mean ± SD	0.4±9.6	-3.6±7.2	U=60.0, p=0.28
LNS <sup>8)</sup> scores, mean ± SD	0.9±2.2	0.0±2.1	U=65.0, p=0.40
VMS <sup>9)</sup> forward scores, mean ± SD	0.1±1.2	0.0±1.7	U=73.0, p=0.66
VMS backward scores, mean ± SD	-0.1±1.7	0.1±1.4	U=71.0, p=0.60
CAS <sup>10)</sup> scores, mean ± SD	-0.3±0.7	-0.2±0.7	U=77.0, p=0.74
MADRS <sup>11)</sup> total scores, mean ± SD	0.1±4.6	0.2±3.0	U=69.0, p=0.53
HAM-A <sup>12)</sup> total scores, mean ± SD	-0.4±5.6	-0.9±2.7	U=65.5, p=0.42
BFI <sup>13)</sup> scores, mean ± SD	-7.1±19.7	-6.4±13.2	U=75.5, p=0.78
FACT-B <sup>14)</sup> total scores, mean ± SD	6.3±13.7	7.0±7.0	U=75.5, p=0.78
Hb <sup>15)</sup> levels, mean ± SD	1.0±1.0	1.0±1.4	U=68.5, p=0.52
TNF- <sup>16)</sup> levels, mean ± SD	-26.7±111.9	-1.2±2.2	U=74, p=0.72

We considered multiple corrections separately for primary (i.e. CFQ, DEX-S, and EMC-S scores) and secondary outcome measures. Thus, we considered that a significant p-value is less than 0.016 (= 0.05/3) and 0.0038 (= 0.05/(16-3)) for the comparisons in primary and secondary outcomes, respectively.

Notes: 1) DEX-S = Dysexecutive Questionnaire - self-rating, 2) DEX-I = Dysexecutive Questionnaire - independent rater, 3) BADS = Behavioral Assessment of the Dysexecutive Syndrome, 4) EMC-S = Everyday memory checklist - self-rating, 5) EMC-I = Everyday memory checklist - independent rater, 6) RBMT = Rivermead Behavioral Memory Test, 7) CFQ = Cognitive Failures Questionnaire, 8) LNS = Letter Number sequencing test, 9) VMS = Visual Memory Span, 10) CAS = Clinical Assessment for Spontaneity, 11) MADRS = Montgomery Asberg Depression Rating Scale, 12) HAM-A = Hamilton Anxiety Rating Scale, 13) BFI = Brief Fatigue Inventory, 14) FACT-B = Functional Assessment of Cancer Therapy - Breast, 15) Hb = Hemoglobin, 16) TNF- = Tumor Necrosis Factor – alpha