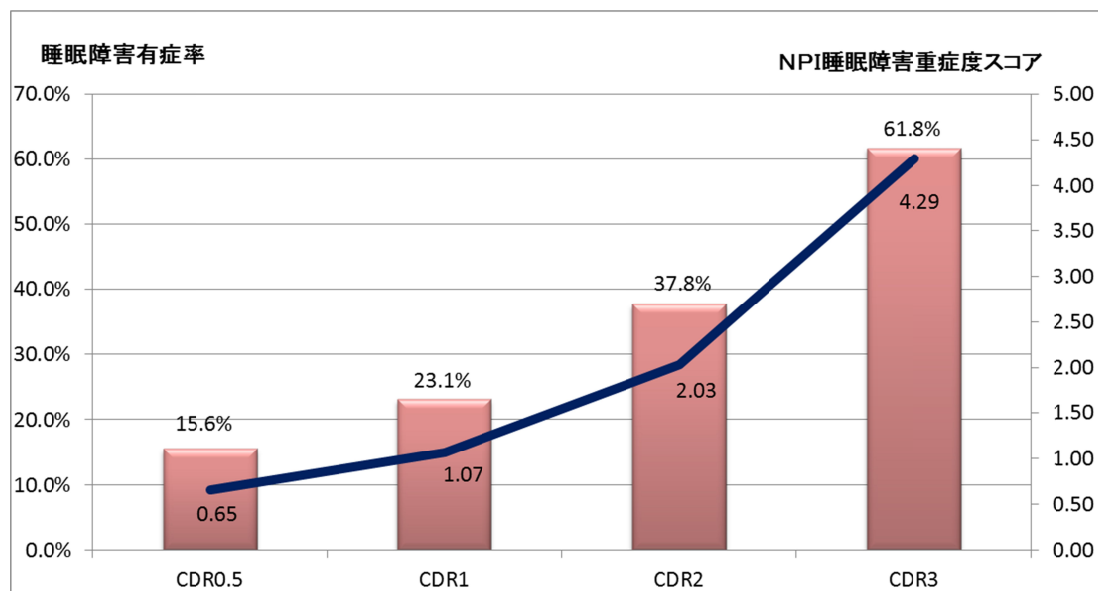


(図1) 対象者のフローダイアグラム

|  | Without sleep problem |         | With Sleep problem |         | $t/\chi^2$ | P                  |
|--|-----------------------|---------|--------------------|---------|------------|--------------------|
|  | Mean                  | SD      | Mean               | SD      |            |                    |
| <i>n</i>                                 | 642                   |         | 206                |         |            |                    |
| Age                                      | 76.00                 | 8.396   | 76.11              | 8.886   | -0.17      | 0.866 <i>n.s</i>   |
| Years of education                       | 11.10                 | 2.938   | 10.81              | 2.743   | 1.28       | 0.200 <i>n.s</i>   |
| MMSE score                               | 19.70                 | 5.326   | 18.09              | 5.972   | 3.45       | 0.001 **           |
| Sex (male, % of male)                    | 209                   | (32.6%) | 82                 | (39.8%) | 3.64       | 0.064 <i>n.s</i> † |
| Clinical Dementia Rating ( <i>n</i> , %) |                       |         |                    |         |            |                    |
| CDR 0.5                                  | 271                   | (42.2%) | 50                 | (24.3%) |            |                    |
| CDR 1                                    | 269                   | (41.9%) | 81                 | (39.3%) |            |                    |
| CDR 2                                    | 89                    | (13.9%) | 54                 | (26.2%) |            |                    |
| CDR 3                                    | 13                    | (2.0%)  | 21                 | (10.2%) |            |                    |

CDR, Clinical Dementia Rating; MMSE, Mini-Mental State Examination. †,  $\chi^2$ -test  
 Without sleep problem, NPIsleep=0; With Sleep problem, NPIsleep = 1  
 \*\*\* P < 0.001, \*\* P < 0.01, \* P < 0.05.

(表1) 患者基本データ(睡眠障害の有無別)



(図2) ADのCDRごとの睡眠障害有症率と重症度

|                          | AD without sleep problem | AD with Sleep problem | t / $\chi^2$ | p Value          |
|--------------------------|--------------------------|-----------------------|--------------|------------------|
| <b>CDR = 0.5 (N=321)</b> | N=271                    | N=50                  |              |                  |
| Age                      | 75.24 ±8.802             | 72.84 ±8.643          | 1.78         | 0.076 <i>n.s</i> |
| Sex (male, % of male)    | 99 (36.5%)               | 24 (48.0%)            | 2.35 †       | 0.154 <i>n.s</i> |
| Years of education       | 11.38 ±2.743             | 11.70 ±2.558          | -0.76        | 0.450 <i>n.s</i> |
| MMSE score               | 22.78 ±3.484             | 23.24 ±3.223          | -0.86        | 0.389 <i>n.s</i> |
| <b>CDR = 1 (N=350)</b>   | N=269                    | N=81                  |              |                  |
| Age                      | 76.29 ±8.126             | 76.53 ±7.937          | -0.23        | 0.817 <i>n.s</i> |
| Sex (male, % of male)    | 78 (29.0%)               | 30 (37.0%)            | 1.89 †       | 0.173 <i>n.s</i> |
| Years of education       | 10.97 ±3.055             | 11.10 ±2.737          | -0.33        | 0.742 <i>n.s</i> |
| MMSE score               | 18.94 ±4.276             | 19.30 ±4.241          | -0.66        | 0.507 <i>n.s</i> |
| <b>CDR = 2 (N=143)</b>   | N=89                     | N=54                  |              |                  |
| Age                      | 77.20 ±8.048             | 77.41 ±9.785          | -0.14        | 0.892 <i>n.s</i> |
| Sex (male, % of male)    | 27 (30.3%)               | 20 (37.0%)            | 0.68 †       | 0.464 <i>n.s</i> |
| Years of education       | 10.56 ±3.089             | 10.09 ±2.715          | 0.92         | 0.359 <i>n.s</i> |
| MMSE score               | 14.47 ±5.294             | 14.72 ±4.562          | -0.29        | 0.773 <i>n.s</i> |
| <b>CDR = 3 (N=34)</b>    | N=13                     | N=21                  |              |                  |
| Age                      | 77.31 ±6.738             | 78.95 ±8.947          | -0.57        | 0.573 <i>n.s</i> |
| Sex (male, % of male)    | 5 (38.5%)                | 8 (38.1%)             | 0.00 †       | 1.000 <i>n.s</i> |
| Years of education       | 11.62 ±2.959             | 9.38 ±2.397           | 2.41         | 0.022 *          |
| MMSE score               | 6.85 ±4.337              | 9.81 ±6.178           | -1.51        | 0.141 <i>n.s</i> |

CDR, Clinical Dementia Rating; MMSE, Mini-Mental State Examination. †,  $\chi^2$ -test

Without sleep problem, NPIsleep=0; With Sleep problem, NPIsleep = 1

\*  $P < 0.05$ .

(表2) CDRごとの各背景因子・認知機能と睡眠障害別の関連

|                         | Without sleep problem |        | With sleep problem |        | <i>t</i> | <i>P</i> |    |
|-------------------------|-----------------------|--------|--------------------|--------|----------|----------|----|
|                         | Mean                  | SD     | Mean               | SD     |          |          |    |
| <u>CDR 0.5</u>          |                       |        |                    |        |          |          |    |
| NPI total score         | 10.00                 | 10.288 | 17.03              | 13.034 | -7.07    | < 0.001  | ** |
| Delusion                | 1.03                  | 2.501  | 1.86               | 3.185  | -3.41    | < 0.001  | ** |
| Hallucinations          | 0.31                  | 1.387  | 0.75               | 2.103  | -2.80    | 0.006    | *  |
| Agitation               | 0.99                  | 2.138  | 1.80               | 2.821  | -3.78    | < 0.001  | ** |
| Depression              | 0.91                  | 1.879  | 1.17               | 1.912  | -1.73    | 0.084    |    |
| Anxiety                 | 0.95                  | 2.168  | 1.49               | 2.583  | -2.73    | 0.007    | *  |
| Euphoria                | 0.08                  | 0.572  | 0.13               | 0.735  | -0.92    | 0.359    |    |
| Apathy                  | 3.54                  | 3.292  | 4.96               | 3.938  | -4.69    | < 0.001  | ** |
| Disinhibition           | 0.37                  | 1.353  | 0.84               | 2.110  | -3.01    | 0.003    | *  |
| Irritability            | 0.93                  | 2.178  | 1.64               | 2.685  | -3.44    | < 0.001  | ** |
| Aberrant motor behavior | 0.89                  | 2.362  | 2.39               | 3.767  | -5.41    | < 0.001  | ** |
| <u>CDR 1</u>            |                       |        |                    |        |          |          |    |
| NPI total score         | 6.14                  | 7.400  | 13.50              | 13.488 | -3.75    | < 0.001  | ** |
| Delusion                | 0.55                  | 1.847  | 1.70               | 3.340  | -2.36    | 0.022    |    |
| Hallucinations          | 0.17                  | 0.827  | 0.72               | 2.339  | -1.63    | 0.108    |    |
| Agitation               | 0.48                  | 1.401  | 1.38               | 2.594  | -2.39    | 0.020    |    |
| Depression              | 0.77                  | 1.805  | 1.10               | 2.243  | -1.12    | 0.262    |    |
| Anxiety                 | 0.64                  | 1.700  | 1.58               | 2.658  | -2.42    | 0.019    |    |
| Euphoria                | 0.03                  | 0.284  | 0.16               | 0.710  | -1.28    | 0.206    |    |
| Apathy                  | 2.20                  | 2.513  | 3.78               | 3.495  | -3.06    | 0.003    | *  |
| Disinhibition           | 0.24                  | 1.144  | 0.82               | 2.229  | -1.80    | 0.078    |    |
| Irritability            | 0.78                  | 2.108  | 1.04               | 1.761  | -0.81    | 0.417    |    |
| Aberrant motor behavior | 0.28                  | 1.109  | 1.22               | 2.951  | -2.23    | 0.030    |    |
| <u>CDR 2</u>            |                       |        |                    |        |          |          |    |
| NPI total score         | 11.23                 | 10.106 | 14.44              | 12.400 | -2.13    | 0.035    |    |
| Delusion                | 1.28                  | 2.801  | 1.26               | 2.668  | 0.07     | 0.947    |    |
| Hallucinations          | 0.39                  | 1.730  | 0.40               | 1.301  | -0.02    | 0.982    |    |
| Agitation               | 1.08                  | 2.040  | 1.42               | 2.650  | -1.23    | 0.220    |    |
| Depression              | 0.96                  | 1.846  | 0.89               | 1.761  | 0.29     | 0.774    |    |
| Anxiety                 | 0.97                  | 2.162  | 1.36               | 2.763  | -1.17    | 0.244    |    |
| Euphoria                | 0.07                  | 0.483  | 0.06               | 0.366  | 0.22     | 0.828    |    |
| Apathy                  | 4.09                  | 3.276  | 4.15               | 3.328  | -0.13    | 0.895    |    |
| Disinhibition           | 0.38                  | 1.138  | 0.74               | 2.066  | -1.51    | 0.135    |    |
| Irritability            | 0.99                  | 2.096  | 1.64               | 3.079  | -1.80    | 0.075    |    |
| Aberrant motor behavior | 1.02                  | 2.565  | 2.53               | 4.038  | -3.18    | 0.002    | *  |
| <u>CDR 3</u>            |                       |        |                    |        |          |          |    |
| NPI total score         | 16.00                 | 11.068 | 23.43              | 12.659 | -1.74    | 0.091    |    |
| Delusion                | 0.69                  | 1.702  | 2.81               | 3.356  | -2.43    | 0.021    |    |
| Hallucinations          | 0.69                  | 1.377  | 2.14               | 3.798  | -1.59    | 0.123    |    |
| Agitation               | 2.38                  | 3.731  | 2.29               | 2.572  | 0.09     | 0.928    |    |
| Depression              | 0.62                  | 1.325  | 1.52               | 1.721  | -1.73    | 0.094    |    |
| Anxiety                 | 1.38                  | 2.256  | 1.43               | 2.111  | -0.06    | 0.955    |    |
| Euphoria                | 0.00                  | NA     | 0.00               | NA     | NA       | NA       |    |
| Apathy                  | 6.92                  | 3.861  | 8.24               | 3.659  | -1.00    | 0.326    |    |
| Disinhibition           | 0.69                  | 2.213  | 0.67               | 1.560  | 0.04     | 0.969    |    |
| Irritability            | 0.92                  | 2.178  | 1.00               | 1.517  | -0.12    | 0.904    |    |
| Aberrant motor behavior | 1.69                  | 3.816  | 3.33               | 4.103  | -1.16    | 0.253    |    |

CDR, Clinical Dementia Rating; MMSE, Mini-Mental State Examination ; NA, not available

Without sleep problem, NPIsleep=0; With Sleep problem, NPIsleep = 1

\*\* P < 0.001, \* P < 0.01

**(表3) CDR ごとの睡眠障害の有無とNPI**

|                    | $\beta$ | $t$   | $P$         |
|--------------------|---------|-------|-------------|
| Age                |         |       | <i>n.s</i>  |
| Sex                |         |       | <i>n.s</i>  |
| Years of education |         |       | <i>n.s</i>  |
| MMSE score         | -0.18   | -5.74 | < 0.001 *** |
| Score of sleep     | 0.36    | 11.37 | < 0.001 *** |

\*\*\*  $P < 0.001$ . The *n.s* means not significance.

MMSE, Mini-Mental State Examination.

**(表4) NPI 合計得点と他の因子との関連 (重回帰分析)**