Medication Management Skill and Regimen Compliance are Deteriorated in the Elderly Even without Obvious Dementia

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We investigated whether regimen comprehension deteriorated in the elderly patients who did not suffer from obvious dementia. Eligible patients were ambulatory elderly patients who did not show any signs of dementia and could visit our outpatient clinic by themselves. 138 patients (age: 43—89, 75 males and 63 females, underlying diseases: hypertension, hyperlipidemia, arrhythmia etc.) were tested with a regimen comprehension scale (RCS: Jpn J Geriat 1997; 34: 209-214). The differences in scores among individuals increased with age. Scores of 5 or less in the RCS were recorded in 10 out of 69 patients aged 65 or more, but no such scores were recorded in younger patients ($p<0.01$). The 60 patients who scored less than full marks were classified into two groups, the T-group (tutored by pharmacists), and a Non Tutored group. RCS was tested again in both groups. Only in the T-group (n=28), did the second scores increase significantly (from 7.2 ± 0.9 to 8.6 ± 2.0 (m$\pm$SD); $p<0.01$) after tutorial by pharmacists. Comparing the 7 patients who obtained an RCS score of 5 or less and age- and gender-matched controls who got full marks, there was no difference in the HDS-R test. These results suggest that even in elderly patients who did not show any signs of dementia, the regimen comprehension deteriorated with age, and tutorials in medication protocols were considered to be effective.

Key words——regimen comprehension; regimen tutorial; elderly patients; dementia

INTRODUCTION

Medication management skills tend to deteriorate in elderly patients due to a lack of skill and reductions in their capacities such as weakened sight, muscle weakness, and cognitive deficits due to dementia.[1—3] An increase in the frequency of prescribed drugs as a result of accompanying diseases of aging accelerate this tendency.[4]

This study was undertaken in order to evaluate the ability of elderly patients particularly in those without obvious mental disability to maintain a consistent regimen of medication. We also assessed whether a series of tutorials about drug taking can be effective in the elderly self-attending patients. Then the revised version of Hasegawa's dementia scale (HDS-R) test was administered to some of the participants in order to show the relationship between mental disability and regimen comprehension.

METHODS

Outpatients who were elderly and did not show any obvious demential signs and who could visit hospitals by themselves were considered eligible for this study. We recruited 138 patients from our outpatient clinic (age: 43—89 (64.3 ± 10.1: m$\pm$SD), 75 males and 63 females whose underlying diseases included hypertension, hyperlipidemia, and arrhythmia). Patients with stroke history, or sight or hearing weakness were excluded. The participants were tested with a regimen comprehension scale (RCS)[5] between June 10th, 1997 and July 15th, 1997. We prepared five medicine containers each of which had a different prescription. Each containers presented information on dosage and administration of each drug. The patients were tested how to read the information on the paper containers. Participants were questioned about taking drugs in a scenario format. The medicine container types were familiar, but not particular to each patients. Correct answers were scored as one point, and wrong answers were scored as one demerit. No checks were scored from one to four demerits. Full marks showed as ten points, and minimum marks showed as minus ten points. We assessed the age-difference in scores.

In the second test, RCS was re-evaluated in some of the participants to assess the efficacy of the tutorials in taking drugs. The 60 patients who did not get full marks (age: 68.5 ± 8.8; m$\pm$SD, 29 males and 31 females) were classified into two groups: the tutored group (T: age; 68.2 ± 9.3, 16 males and 14 females, the first RCS score; 7.2 ± 1.8) who were tutored by pharmacists about taking drugs, and the non-tutored group (N: age; 68.9 ± 8.5, 13 males and 17 females,

the first RCS score; 7.1 ± 2.2). The pharmacists tutored how to read the information on dosage and administration of prescribed drugs on the paper containers. It took about 20 minutes to tutor each patient. The second test was performed between three and eight weeks after the tutorials. In the T-group, the participants received initial private instructions from pharmacists on how to find correct dosage information written on the drug containers. Both groups were retested for RCS at seven to twenty-two weeks after the first RCS, and difference in the first and the second scores of RCS between the groups was measured.

Numerical data were tested by unpaired, paired t-test, and χ^2-test, and the mean±standard deviation was included.

Some of the participants were tested for HDS-R in order to assess the relationships between the deterioration of regimen comprehension and restricted discrimination (for example dementia). These numerical data were tested by paired t-test.

RESULTS

Figure 1 shows the age-score relationship relative to RCS. The differences in scores among individuals increased with age. The average scores of participants aged 65 or more were significantly lower than younger participants (8.0 ± 2.4 vs 9.5 ± 1.0; $p<0.01$). Scores of five or less were recorded in 10 of the 69 patients aged 65 or more, but in none of the 69 patients aged less than 65 ($p<0.01$). The number of patients who got full marks was higher in patients aged 65 or more (42 vs 18; $p<0.001$).

Figure 2 shows each of the first and second scores of RCS between the T- and the N-group. In the T-group, the average scores increased significantly after the tutorials (from 7.2 ± 1.9 to 8.6 ± 2.0; $p<0.01$). In the N-group, the scores tended to increase, but there was no significance (from 7.2 ± 2.3 to 8.0 ± 3.1; NS).

Figure 3 shows the relationships between HDS-R and RCS. The HDS-R score did not demonstrate a difference between the low- and high scores in RCS (27.6 ± 2.0 vs 28.1 ± 2.1; NS), and no patients in either groups considered to be dementia-scored less than 21.

DISCUSSION

This study suggested that some elderly patients without dementia received lower scores in RCS and that regimen comprehension ability was increased in patients who were tutored in drug dosage protocols.

Shiomi et al.[5] demonstrated a positive correlation between HDS-R and RCS scores. They also determined that ability in regimen comprehension deteriorated among elderly patients particularly in those with dementia. Ruscin and Semla[1] administered the Mini-Mental State Examination Score among elderly individuals living in the community, and concluded that cognitive deficit is a strong predictor for the inability of patients to perform tasks associated with medication management. As an addition to this research, we focused our assessment of the deterioration of medication management skills on elderly participants without dementia. The participants in our study were limited to those elderly patients who could
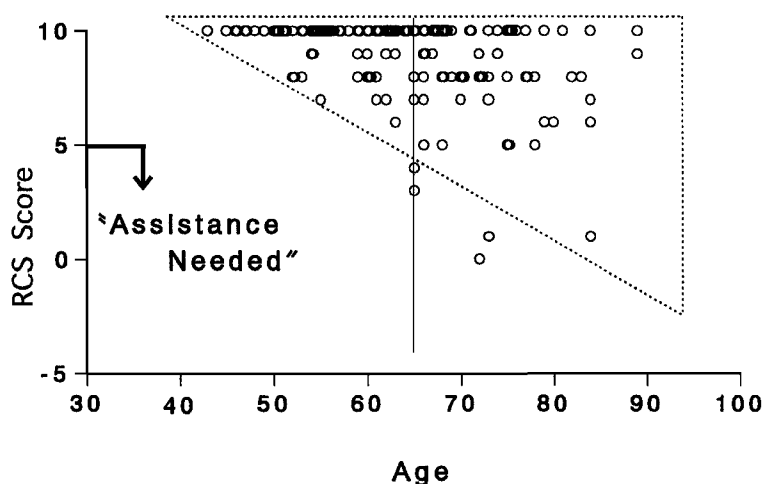

Fig. 1. Age-Scored Relationship in Regimen Comprehension Scale Score
Distribution of scores among individuals is mainly located in the right-upper triangle. The score of 5 or less (regarded as "assistance needed") was recorded in 10 of 69 patients age 65 or more but in none of the younger patients ($p<0.01$).
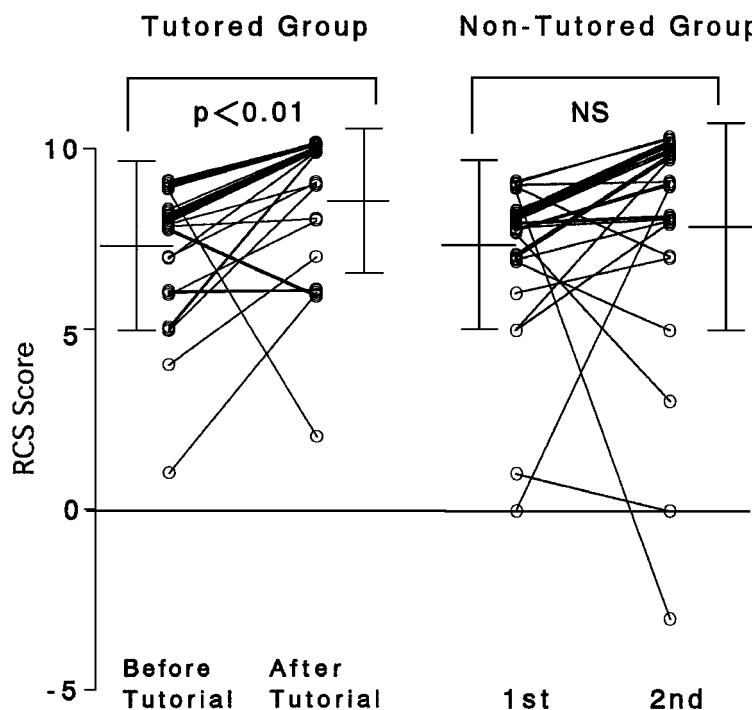
Tutored Group   Non-Tutored Group

Fig. 2.   Improvement of Regimen Comprehension Scale Score after Tutorials by Pharmacists

The scores before (*left*) and after (*right*) tutorial of the tutored group are illustrated on the left side, and 1st and 2nd score of the non-tutored group are illustrated on the right side. The scores were significantly increased in the tutored group (7.2 ± 1.9 to 8.6 ± 2.0; $p < 0.01$).
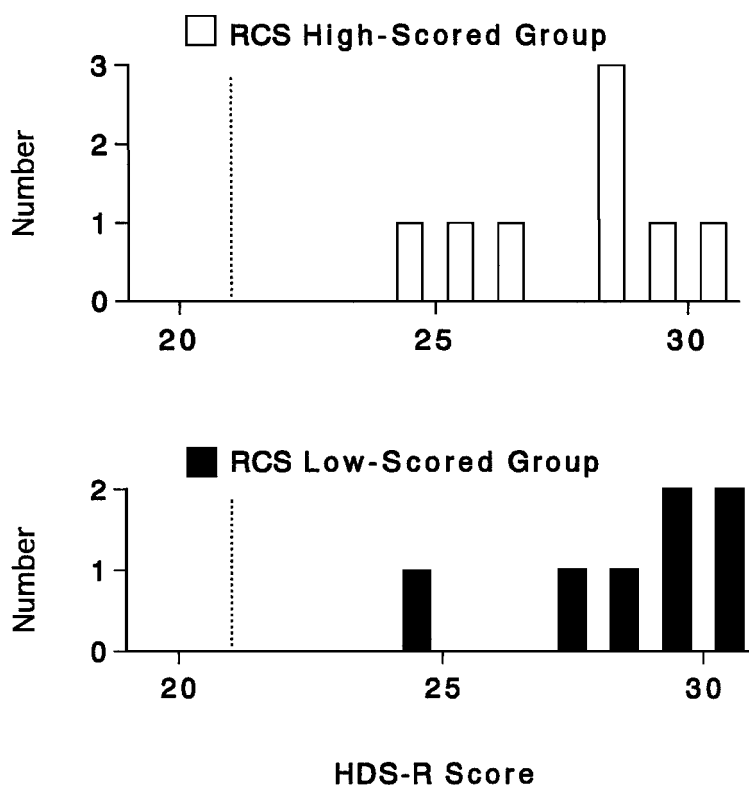

Fig. 3.   The Distribution of HDS-R Scores in Patients of Low and High Regimen Comprehension Scale Score

High and low score of RCS were considered as RCS-score = 10 and RCS-score < 5, respectively. Dotted lines show the border of dementia and non-dementia people. There were no dementia-scored (< 21) patients in both groups.

attend our hospital unaided by others.

Shiomi *et al.*[5] considered that elderly patients who scored five or less in the RCS were 'assistance needed'. In this study there were 10 elderly patients without dementia who scored five or less. HDS-R were tested to evaluate the level of intelligence or dementia in seven elderly patients who scored five or less on RCS and also in age- and gender-matched controls who obtained full marks. The results did not show any differences in the groups. This result suggests that participants in this study did not suffer from dementia. Even in elderly patients without dementia there are someone who need assistance in taking drugs.

Lawton[6] pointed out the importance of understanding five categories in which to evaluate function in the elderly. They include health, functional health, cognition, time use, and social behavior. Medication management skills are involved in instrumental activities in daily living (I-ADL) which are included in the same category as functional health such as shopping, use of transportation and cooking, although some cognition skills are included in another activities. Our results support this classification, based upon the differences between the HDS-R and RCS scores. The patients with obvious dementia are given support in taking drugs, however, age-induced deterioration of medication management skills is a blind spot especially for those elderly patients without obvious cognition deficits.

German *et al.*[7] indicates that there were no significant differences between a group which was tutored in medication protocols and a non-tutored group. Our study, however indicates obvious benefits of instruction in elderly patients.

The regimen comprehension tended to be improved even in the non-tutored group. Fujii and Seki[8] showed a similar tendency in their study. After they performed a regimen compliance test, the compliance of medicine management improved even without instruction. This might indicate that if the doctor simply questions the patient about the medication, regimen compliance might be improved.

Daily outpatient-clinic communications with individual patients are usually extremely limited, and doctors cannot adequately discuss diseases or drug-taking protocols. We believe that the results of our study indicate that regimen comprehension were deteriorated in the elderly patients even without dementia and that tutorials by pharmacists in drug taking protocols can improved the compliance.

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要旨

　明らかな痴呆がないと考えられる老年患者において，服薬理解能力が加齢に伴い低下するか否かを調査した．明らかな痴呆所見がなく，当院外来に独歩にて通院中の患者 138 例 (年齢 43 歳〜89 歳，基礎疾患：高血圧，高脂血症，不整脈等) を対象に服薬理解能力評価スケール (RCS，日老医誌 1997; 34) を用いて服薬理解能力を調査した．加齢に伴い低得点者は増加し，得点の個人差が大きくなった．5 点以下の低得点例数は 65 歳以上の高齢者 (n＝69) で 10 例みられたのに対し，65 歳未満の患者 (n＝69) ではいなかった (p＜0.01)．満点を取得できなかった 60 例を，薬剤師による服薬指導群 30 例 (T 群) と非指導群 30 例 (N 群) に分け，各々に RCS の再調査を行った．その中で 2 回の調査を終了しえた 57 例 (T 群 28 例，N 群 29 例) に関し服薬指導の効果を調査した．T 群では指導前後で得点が有意に上昇 (7.2±1.9 vs 8.6±2.0(m±SD); p＜0.01) した．N 群では上昇傾向を示したが有意差はなかった．RCS で 5 点以下の低得点者 10 例のうち 7 例 (RCS 低得点群) と，この 7 例に性別及び年齢を一致させた 7 例を満点取得者の中から選択し (RCS 満点群)，両群に対し改訂長谷川式簡易知能評価スケール (HDS-R) を行ったところ，両群で成績に有意差はなかった．明らかな痴呆がないと考えられても，65 歳以上の高齢者では加齢に伴い服薬理解能力が低下した．服薬理解能力低下者に対する服薬指導は有効であった．