Comparison of medications used by patients in a dental outpatient clinic for the elderly with those used by patients in health care facilities for the elderly

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The Long-Term Care Insurance Law of 2000 authorizes dental services in health care facilities for the elderly. We investigated the use of drugs by residents in health care facilities for the elderly and compared it with the use by outpatients at our dental clinic for the elderly. The subjects were 98 residents (21 males and 77 females) with a mean age of 86 years who were in health care facilities for the elderly in May 2005, and 178 patients (67 males and 111 females) with a mean age of 77 years who visited the Dental Clinic for the Elderly at Osaka Dental University Hospital between May and July 2005. Based on records at each facility we investigated the underlying diseases, drugs in use, degree of independence of each patient, and the level of care each needed. At our dental clinic for the elderly, the underlying diseases and drugs in use were surveyed by a medical interview and by reviewing package inserts accompanying the drugs.

The number of underlying diseases was greater in the health care facilities for the elderly than in our dental clinic for the elderly for all age groups. Cardiovascular diseases accounted for the greatest percentage, and neurological diseases were more common in the health care facilities than in our dental clinic. The mean number of drugs in use was similar among the age groups: about 3.3 in the Dental Clinic for the Elderly and 4.1 in the health care facilities. The percentages of gastrointestinal drugs and neurological drugs were greater in the health facilities than at our clinic. Fifty percent of the cardiovascular medications were for hypertension, and more than half of the hypotensive medications were calcium antagonists. (J Osaka Dent Univ 2009; 43: 183–188)

Key words: Medication; Elderly; Health care facilities

INTRODUCTION

The elderly often have many chronic disorders and take multiple medications. Many common drugs affect dental treatment. Knowledge of the medications the patient is using provides useful information on the severity of his disease, side effects of the drugs, and the patient's general condition. We previously evaluated the medications regularly used by outpatients in the Dental Clinic for the Elderly at our department. Since the enactment of the Long-Term Care Insurance Law in 2000, the opportunity for patients to receive dental services in health care facilities for the elderly has been increasing. We investigated medications commonly used by residents in health care facilities for the elderly and compared them with medications used by outpatients at our dental clinic for the elderly.

METHODS

The subjects were 98 residents (21 males and 77 females) with an average age of 77 years who were resident in health care facilities for the elderly in May 2005, and 178 patients (67 males and 111 females) with an average age of 86 years who visited the Dental Clinic for the Elderly at Osaka Den-
Fig. 1  Ages of the subjects.
□ Male, □ Female.

Osaka Dental University Hospital between May and July 2005 (Fig. 1). At our dental clinic for the elderly, the underlying diseases and drugs in use were investigated by a medical interview and by consulting package inserts accompanying the drugs.

RESULTS

Number of underlying diseases

There were patients without underlying diseases in our dental clinic for the elderly. In the health facilities for the elderly, all residents had underlying diseases. In all age groups, the number of underlying diseases was greater in the health facilities for the elderly (Fig. 2).

Types of disease

The types of disease we found are shown by gender according to the WHO ISD classification. Car-
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Fig. 3 Types of disease the patients had.
[Male, Female]

Fig. 4 Percentage of patients taking various medications.
Number of medications: 0, 1, 2, 3, 4, 5, 6+

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Fig. 5 Mean number of drugs for each age group.

Diabetes mellitus was the most common in both genders. There was a high percentage of musculoskeletal diseases in females. The percentage of neurological diseases was greater in the health facilities for the elderly than at our clinic (Fig. 3).

Medications
Figures 4 and 5 show the types and the mean number of drugs the patients were using. Twenty-five percent of the patients in our clinic were not taking any drugs. In the health facilities, 95% of the residents were using at least one drug. The mean number of drugs was similar among the age groups; it was 3.3 in our clinic and 4.1 in the health care facilities for the elderly.
Medications according to efficacy

The medications in use are shown according to their type based on the classification in Drugs in Japan.7 The percentage of cardiovascular drugs was high in both males and females. The percent-

ages of gastrointestinal and neurological drugs were greater in the health facilities for the elderly than in our clinic (Fig. 6).

![Graph showing medications by type](image)

**Fig. 6** Number of patients taking various medications. □ Male, ■ Female.

![Graph showing types of medications](image)

**Fig. 7** Types of medications taken by the patients.
Types of cardiovascular drugs
Over half of the cardiovascular drugs were for hypertension. Among hypotensive drugs, the majority were calcium antagonists. Though the percentage of hypotensive drugs was greater in the health care facilities for the elderly, other factors were similar (Fig. 7).

Number and type of drugs in use according to the patient’s degree of independence based on the Activities of Daily Living (ADL) classification
The ADL classifications for the degree of independence in daily life for patients in health care facilities is shown below (Fig. 8).

J: Patient is essentially independent in his daily life and does not need help despite his ailments.
A: Patient is essentially independent in his home/room, but cannot go out without help.
B: Patient needs help in daily life and is bedridden, but can maintain his body position.
C: Patient is confined to bed all day and requires help for excretion, meals and changing clothes.

As the independence decreased and the level of care needed increased, the mean number of drugs tended to decrease. In the extremes for the two parameters, the percentage of gastrointestinal drugs increased while those for cardiovascular diseases decreased (Figs. 9 and 10).

DISCUSSION
Subjects
The number of patients decreases at the Dental Clinic for the Elderly at Osaka Dental University Hospital as the age goes up, while the number of patients increases at the health care facilities for the elderly as the age goes up. Because outpatient visits to hospitals often become more difficult with age, there has been an increase in the number of health care facilities for the elderly. Because of the gender difference in lifespan, there were more females than males in both facilities. Many of the pa-
Patients in the health care facilities for the elderly were in levels A or B of the ADL classification. This seems common at this type of facility.

**Underlying diseases**

Although the underlying diseases of the patients were essentially the same at our clinic as at the health care facilities, a greater percentage of patients at the health care facilities had neurological diseases. However, it is difficult to judge whether inpatients were admitted to health care facilities because they had neurological diseases or whether they have neurological diseases because they were admitted to health care facilities. Regardless, the results are interesting.

**Medications used**

Residents in the health care facilities had more ailments than outpatients at our clinic for all age groups. Cardiovascular diseases were the most common, and the percentage of neurological diseases was greater in the health care facilities than at our dental clinic. The mean number of drugs in use was similar among the age groups: about 3.3 in our dental clinic and 4.1 in the health care facilities. Cardiovascular drugs were most frequently used. The percentages of gastrointestinal drugs and neurological drugs were greater in the health care facilities than in our clinic. Among cardiovascular drugs, hypotensive medications accounted for more than 50%, with calcium antagonists being the most common. These results were similar to other studies.  

Although few patients revealed that they had neurological disease in their medical interviews at our clinic, a review of the medications they were taking revealed the frequent use of neurological drugs. Although the reason for this inconsistency was unclear, this finding seems to indicate that reviewing package inserts that accompany drugs may be a useful in evaluating a patient’s condition.  

In the health facilities for the elderly, the mean number of drugs in use and the percentage of cardiovascular drugs used were low for residents with a low degree of independence based on the ADL score. This finding suggests difficulty in evaluating the general condition of residents based on their degree of independence.

Portions of this study were presented at the Kansai Chapter of the Japanese Society of Prosthetics, January 28, 2006, Kyoto, Japan, and at the 17th Scientific Meeting of the Japanese Society of Gerodontology, June 1, 2006, Okinawa, Japan.

**REFERENCES**