Geriatric oral health care in Taiwan: What do we need?

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Elderly populations are rapidly increasing in many countries around the world. Dentists are increasingly facing patients with different kinds of systemic diseases and some dental diseases to which the elderly are particularly predisposed. In addition, some common dental problems in older people are extremely complicated and are not easy to treat. As we move into the 21st century, Taiwan is facing an aging population. To establish a geriatric oral healthcare system, well-trained dentists and dental teams are going to be in greater demand. Dentists should understand their leading role and assist other medical staff in consultation, technical support, and transfer services. Meanwhile, dentists should also play an important role in establishing systems of oral health care. Some policies and systems of geriatric oral health care in developed countries are worth learning about and emulating. (J Dent Sci, 2(2) : 59-64, 2007)

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Concomitant with advances in medical science over many decades, aged populations are increasing in many countries around the world. According to a report by the Department of Health, Taiwan (2003), the population aged 65 years or older accounted for 9.74% of the total Taiwanese population. The ratio is projected to increase to 14% by 2020. The rate of increase of the elderly population in Taiwan is second in the world. This indicates a rapid trend in this country toward an aged society. Geriatrics has become a very important issue in the 21st century. Oral health is considered to be closely related to the quality of human life and even to overall body health. Abundant evidence has shown that the greater the number of natural teeth which a person retains, the better his/her life quality will be. The remaining number of teeth of the elderly affects their diet and nutrition and in turn affects their general health condition. Helping senior citizens preserve more and healthier teeth is the ultimate goal of geriatric dentistry.

The complexity of managing oral health problems of the elderly

Periodontal disease is the most common oral disease of the elderly. Periodontal diseases are mainly caused by microorganisms which colonize the oral environment. This has been statistically linked with several systemic diseases. For example, the risk of myocardial infarction and stroke in patients with periodontitis is 3-fold higher than that of the general population. For frail older adults, periodontal infection predisposes them to aspiration pneumonia. On the other hand, some medical diseases, such as poorly controlled diabetes, may enhance the progression of periodontal diseases in these patients. Such a situation increases the difficulties of periodontal therapy. The most important factors determining a successful outcome of periodontal treatment are plaque control and the frequency of professional care.

Periodontal diseases are indeed disturbing for older people. In fact, prevention of periodontal diseases is only 1 aspect of geriatric oral health care. Other common dental problems of the elderly include restoration demands due to missing teeth, decreased salivary secretions, and root caries. On the basis of a
literature review, a decrease in salivary secretion is significantly associated with the oral health-related quality of life. Unfortunately, this disease is associated with several prescription drugs such as antihypertensives as well as certain medical diseases such as thyroid disorders. In addition, low salivary flow along with the oral hygiene status is a potential risk factor for root caries.

Root caries occur mainly after exposure of the root cementum and is usually related to periodontal diseases. It is a multifactorial disease. Compared with coronal caries, possible etiologies and preventive methods for root caries are still unclear. However, root caries increase with advancing age and their prevalence is higher than expected. Furthermore, endodontic treatments of these carious teeth in the elderly have been considered to be challenging due to narrow or obstructed root canals. Therefore, root caries prevention is another critical issue related to periodontal diseases. According to a review by Dung and Liu, root caries prevention can be divided into 3 phases: a primary phase that is a truly preventive phase, a secondary phase to reverse an initial root caries, and a tertiary phase to manage established lesions. In addition to maintaining good oral hygiene such as effective plaque control, preventive methods for root caries should also include diet modification, topical or systemic fluoride application, and periodic monitoring.

Even if older people can maintain good oral hygiene without periodontal disease or dental caries, they may suffer pulp exposure, loss of vertical dimension, or root fractures from other dental problems such as severe occlusal wear and cervical abrasion. All of these problems are extremely complicated and difficult to treat. Not only are dental specialists required, good communication and co-ordination between doctors and patients are also needed to carry out these difficult treatments.

Along with aging, elderly patients also face postural and stamina difficulties in receiving dental therapy. Dental chair positioning and comfort may be more important for older adults than for younger patients. Difficulty breathing and the gag reflex during dental procedures are other important issues that dentists should pay attention to. Some older people are hard of hearing, and it is difficult for them to communicate with others. Dentists should be patient with them at each appointment.

Geriatric oral health care in developed countries

A well-known activity, called the “8020 campaign” (having more than 20 teeth at the age of 80) began in Aichi Prefecture in 1985 in Japan. This health promotion activity focuses on oral health. Its goal is to promote the health awareness by helping those older than 80 years to retain more than 20 of their natural teeth. They found that senior citizens with 20 or more teeth had better habitual dietary attitudes throughout their lives. People with this number of teeth tend to have a healthy diet and enjoy it better without the need for removable dentures.

In England, the percentage of people ≥ 85 years of age who had no natural teeth was about 65% in 2005. According to predictions, the percentage of the
elderly who have lost all of their teeth will drop rapidly over the next 20 years. It is believed that the proportion of the elderly with a functional dentition of 20 or more teeth will increase in the future\(^\text{16}\).

In developed countries, some important legislation and policy developments concerning geriatric oral health care have taken place. These developments will have profound impacts on improving oral health care and dental services for the elderly, and will ensure that oral health is considered an integral part of general health care\(^\text{18}\). In some European countries and the US, dental care for independently living older adults is primarily provided by private dental practitioners. In Sweden and the UK, a public dental service and the National Health Service are other choices. Dental treatment for independent senior citizens is not free of charge in any of these countries, but restorative and most preventive dental services are subsidized\(^\text{15}\).

The medical care systems of most developed countries are efficient and comprehensive. It is convenient for people to utilize these medical resources. However, younger people are generally better educated and more often utilize dental services than the elderly. The reasons for this may include inconvenience, illness, the cost of treatment, and inability to access appropriate dental care\(^\text{19}\). When people become frail, domiciliary care is the most effective way of providing dental care even dental surgery. Nevertheless, domiciliary care is usually delivered by a mobile unit/van and portable equipment\(^\text{16}\). For homebound, chronically ill and institutionalized elderly people, special dental care programs are available on-site in Denmark, Norway, and Sweden. Because the governments of these countries have made investments in equipment and dentists are paid a fixed salary, the public dental service may have a better basis for offering domiciliary dental care than private dental practitioners\(^\text{15}\). In Japan, there are dental home services for frail and functionally dependent elderly people, especially in some towns in the countryside. All older people who live in care homes should receive a regular oral health and oral health risk assessment\(^\text{19}\), which includes evaluating the detrimental effects of oral infections on general health\(^\text{1}\).

Nowadays however, most medical staff still do not know much about the actual needs of these senior patients. Many dentists have few chances to take care of severely ill elderly patients, so they have limited experience in providing suitable oral health care for them\(^\text{20}\). Inadequate undergraduate and postgraduate training in geriatric dentistry may also discourage dentists from seeking opportunities to treat elderly patients because of the challenging oral health problems, medical challenges, and psychosocial concerns. Several European dental schools have undergraduate courses in gerodontology, and a few dental schools offer MS or PhD programs in gerontology and geriatrics. However, in Europe, there are no formal postgraduate specially training programs in geriatric dentistry\(^\text{15}\). In Japan, gerodontology is 1 component of the undergraduate dental curriculum in some dental schools. Geriatric dentistry is also a subdivision of dental departments in some university hospitals. In the US, there is only a small core of well-educated dentists who receive special training to meet the needs of medically compromised, functionally dependent, and institutionalized elderly patients. The National Institute on Aging in the US has stated that all dental professionals should receive education in gerodontology as part of their basic professional education. Nowadays however, the shortage of skilled gerodontists is still a problem in the US and Europe\(^\text{15}\). This reveals the high demand for gerodontists.

### Geriatric oral health in Taiwan

For many people in Taiwan, aging is the main reason leading to loss of teeth. Since the loss of teeth is inevitable, most people likely think that geriatric dentistry is simply concerned with prosthesis fabrication. Fortunately, this misunderstanding has gradually decreased in recent years\(^\text{12}\). Progress in preventive dentistry and the promotion of oral health care have made it possible for people to preserve their teeth throughout their life. In addition, due to improvements in overall social economic conditions and provision of dental insurance policies, the elderly working population has raised its motivation to seek dental advice. The factors described above can improve general oral health conditions and decrease rates of total loss of teeth in the elderly\(^\text{12}\).

Although the oral health condition of the elderly population has improved, the average number of teeth lost is still high. According to 1 investigation, which evaluated oral health of the elderly in southern Taiwan in 1992, the average number of missing teeth was 9.5 in the group aged 65–74 years. In the group ≥ 75 years...
old, the average number of missing teeth was 16. In
addition, 57.0% of the elderly visit dentists only when
they experience a bad toothache, and only 1.4% of the
elderly population completely understands the
importance of regular oral examinations. Based on
what is presented in this report, one can conclude that
the concept of “early detection, early treatment” of
dental problems is still not widespread. Moreover,
2.5% of the older people involved in this investigation
visit dentists only when gingival bleeding occurs. This
means that the elderly still lack an awareness of
periodontal diseases, and one can see that the concept
“oral diseases are preventable” is still not well
established. In addition, the elderly use dental services
less than other age groups, and many of them do not
have proper oral health care12.

An oral healthcare program was one of the
earliest public health services provided in Taiwan.
Although the government began very early to focus on
oral health care, implementation has not always been
easy. In addition, these policies are not aimed at
geriatric oral health care. In the future, the aging
population in Taiwan cannot be neglected. Older
people will seek good health, including good oral
health. The Department of Health of Taiwan has
announced that prevention of periodontal diseases is
the next major challenge21. Perhaps this is the first step
in promoting geriatric oral health care.

At present, dental schools in Taiwan still lack
faculty members with a specialty in gerodontology.
Besides, fewer than 1/6 of the hospitals in Taiwan
have special clinics for geriatric dentistry, and all of
these hospitals are distributed in northern Taiwan.
Geriatric dentistry in Taiwan, including education,
clinical training, and policies, is just beginning.

How to improve geriatric oral health care in
Taiwan (Table 1)

There are still many challenges for a national oral
health policy in Taiwan such as caries, oral cancer, etc.
Along with an increasing geriatric population,
geriatric oral health policy is more and more
important and cannot be neglected. Some policies and
systems of geriatric oral health care in developed
countries are worth learning about and emulating.

Prevention is absolutely more important than
treatment, and conducting regular oral examinations
and promoting oral hygiene education are still the
focal points of geriatric oral health care21. The
government should establish a practical and com-
prehensive oral health policy to establish systems with
preventive principles.

With regard to the complex nature and difficulty
of geriatric oral health care, several common dental
diseases in older people such as root caries, root
fractures, and severe attrition should be thoroughly
investigated. From those investigations, dentists may
obtain the pathogeny, and then pursue treatment and
preventive methods. The goal is to lower the oc-

<table>
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<tr>
<th>Table 1. Ways to improve geriatric oral health care by the government and dental teams in Taiwan</th>
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<tr>
<td><strong>The government</strong></td>
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<tr>
<td>Establish practical and comprehensive oral health policies</td>
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<td>Establish dental teams led by dentists</td>
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<td>Establish systems with preventive principles</td>
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<td><strong>Dental schools</strong></td>
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<td>Deliver the necessary education in gerodontology</td>
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<td>Provide postgraduate specialty training programs in gerodonto</td>
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<td>Train geriatric dental specialists</td>
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<td>Train all members of dental teams in ways of treating older</td>
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<td>people</td>
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<td>Investigate dental diseases from which the elderly are likely</td>
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<td><strong>Hospitals</strong></td>
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<tr>
<td>Carry out regular oral examinations and promote oral hygiene</td>
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<td>education in elderly populations</td>
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<td>Treat dental diseases of the elderly</td>
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<td>Assist medical staff of the healthcare system with consultation, technical support, and transfer services</td>
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Geriatric oral health care cannot be accomplished by dentists alone but must include dental teams. In addition to dentists, dental hygienists, dental technicians, dental nurses, and social workers should be included. All members should be aware of the dental needs of the elderly, and they should also receive appropriate training to extend their expertise in treating older people with complex treatment needs. Their abilities should be authenticated by certification\(^{22}\). Requirements established for specialist training must satisfy the complicated dental treatment needs of the elderly. General practitioners with high interest in geriatric dentistry should compose a competency framework for special care dentistry. As for nursing staff, all qualified nurses should have basic knowledge of oral diseases and oral hygiene. They should also have the ability to estimate the oral condition and treatment needs of the elderly, even emergent dental needs. As for other healthcare and social workers, they can address such issues as maintaining good oral hygiene and avoiding oral infections of the elderly through education and creation of an appropriate understanding of the advantages of good oral health\(^{23}\).

Older people may need to utilize the healthcare system because of different systemic diseases, so medical staff members in the healthcare system must also understand the dental needs of elderly persons\(^{12}\). Dentists, gerodontists, and other dental team members should assist the medical staff of the healthcare system with consultation, technical support, and transfer services. They should also assist medical staff in educating the elderly about proper oral health care. Meanwhile, dentists can also play an important role in establishing systems of geriatric oral health care. Establishing a leading role of geriatric oral health care is an important issue for all dentists in Taiwan\(^{12}\).

CONCLUSIONS

An integral geriatric oral healthcare system can promote the oral health and life quality of the elderly. The system can help all older adults, including those independently living, homebound, chronically ill, and institutionalized, receive adequate and convenient oral health care. The government should establish legislation and comprehensive geriatric oral health policies to establish a system based on preventive principles.

Because geriatric oral health care involves many specialized subjects, dentists should play leading roles and offer recommendations. Several common dental diseases from which older people are likely to suffer should be thoroughly investigated in order to develop pertinent treatment and preventive methods. Undergraduate and postgraduate dental education in gerodontology should also be valued. Ways of coping with the urgent problems of geriatric oral health care would be to establish a specialty for geriatric dentistry and establish well-trained dental teams in hospitals throughout the country.

REFERENCES

10. Allen PF, Whitworth JM. Endodontic considerations in the