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SESSION TIME: 1500 - 1640, Monday 23 Oct 2006

Workshop Abstracts

Workshop A - East is not always West: Osteoporosis challenges in East Asia

W1 **Epidemiology of hip and vertebral fracture in Asia: implications for the clinician**
Edith Lau (Hong Kong, PR China)

W2 **From the viewpoint of densitometry**
Masako Ito (Japan)

W3 **Assessing and promoting quality of life in Japan**
Kousei Yoh (Japan)

W1

Epidemiology of hip and vertebral fracture in Asia: implications for the clinician

Edith Lau (Hong Kong, PR China)

--- abstract not available ---

W2

From the viewpoint of densitometry

Masako Ito
Division of Radiology, Nagasaki University Hospital, Japan

There are certain differences in the features of osteoporosis between Eastern and Western countries. For example,

1. Incidence of hip fracture is lower, while prevalence of spinal fracture is higher, among Asian women, compared with Caucasian women.
2. The Japanese have lower bone mineral density (BMD) at several skeletal sites than Caucasians.
3. Vitamin D deficiency is common among Japanese women, which may affect the outcome of various treatments. In fact, an additive effect of vitamin D and estrogen has been demonstrated in Japanese population.

First, is there a difference in BMD values between Caucasians and Asians? When reference curves of BMD with aging were compared among Chinese, Japanese and American Caucasian women, Japanese women had lower BMD at various skeletal sites and a higher rate of BMD decrease with aging than Caucasian women. These differences have been attributed mainly to ethnic differences in body weight and height.

Then, why do Japanese women have lower incidence of hip fracture compared with Caucasian women? Evidence so far suggests that a lower incidence of fall, a shorter stature and a shorter hip axis length in Japanese women may be involved.

It has been reported that a difference in bone geometry is responsible for the racial difference in femoral and spinal strength. Duan Y et al. demonstrated that structural basis of bone fragility differed by race, where bone fragility was calculated on the basis of volumetric BMD and cross-sectional area derived from spinal DXA data.

They found that vertebral fractures would occur in a similar proportion of the Chinese and Caucasians, but structural basis and pathogenesis of bone fragility differed between the two populations.

What about the higher prevalence of vertebral fractures among Japanese women? Two epidemiological reports suggest that fracture risk of Japanese women becomes similar to that of Caucasians. The incidence of thoracic vertebral fractures among the Japanese seemed to decline by a factor of 0.5 in males and 0.6 in females for each 10-year decrease in birth year. Furthermore, according to the prediction of a Japanese cohort, the risk of spine and hip fracture was similar to the relative risk from previous reports on Caucasians, after adjusting for age, prevalent vertebral fracture and baseline BMD.

Treatment outcome differs between Caucasian and Japanese women. Combined administration of estrogen and vitamin D has an additive effect on BMD in healthy Japanese post-menopausal women, while no such additive effect has been reported in Caucasian post-menopausal women. An additive effect of raloxifene and vitamin D in Japanese osteoporotic women has also been reported. These beneficial effects of vitamin D may partly be due to higher prevalence of vitamin D insufficiency among Japanese women. According to the study comparing the effects of alendronate on spinal BMD between Caucasian and Japanese osteoporotic women, the extent of BMD increase by alendronate was similar, even though the dose of alendronate in Japan was half that used for the Caucasian study.

I would also like to touch on the differences in WHO diagnostic criteria and the Japanese version, such as detection rate of osteoporosis.

W3

Assessing and promoting quality of life in Japan

Kousei Yoh MD
Orthop.Dept.Sasayama Hospital, Hyogo College of Medicine, Sasayama, Japan

Osteoporosis is one of the major factor for damaging the QOL of the elderly peoples.

Life is prolonged rapidly in Japan, and it is 85.6 years old in average longevity. It is the country which is the longest longevity in the world. Ratios older than 65 years old for population exceed 25% with a woman, and improvement of QOL in elderly peoples are demanded nationally. The QOL became evaluate in Europe and USA from the later half of 1980's.As for the QOL evaluation of a disease specific model in osteoporosis, Qualeffo41 by Lips et al (1997)of Europe and OPAC by Silverman et al (1993)of USA are well known in this fields .JOQOL (Japanese Osteoporosis Quality of Life) is made in Japan in 1999 by Takahashi et al and passes through a revised edition in 2000, and it is used now .In addition, as disease nonspecific model QOL evaluation, SF36, EQ-5D are used for QOL evaluation of the osteoporosis patient in Japan, too.

We reported QOL findings of 58 Japanese woman osteoporosis patients (73.1 average age ± 8.4 years old) (JBMM23:167,2005). As for PCS (physical component summary score) 44.8 ±11, MCS (mental component summary score) 47.5 ± 10.1 were in Deviation values in SF36. As the number of the spinal compression fractures increased, PF (physical function), MH (mental health), GH (general health) deteriorated. As for JOQOL, there were significant correlation ($p<0.01$) between SF36 with $r=0.76$ and between EQ5D with $r=0.80$.

Specially in the Japanese osteoporosis patient, a pain was strong, and depletion of a normal feeling with it was strong, but it was comparatively good on a SF (Social function) and a EM (emotional role). Same as a report of Silverman, we understood that increase of the number of the spinal compression fractures decreased in all domain of QOL, and it became clear that prevention of a fracture was effective in maintenance and improvement of QOL.

Big family doctrine is still maintained in countryside in Japan, and it is thought that a social function is maintained in the osteoporosis patients. A nuclear family advances in Japan, and, same as western society, a nuclear family is thought to be connected for degradation of a social function in the family for elderly persons.

When we thought about maintenance and improvement of QOL in osteoporosis patients, prevention of a fracture by pharmacotherapy is the most important. And an elderly person does not stand alone from society and a family, and it seems that it is useful in maintenance of QOL to find a role among a family and society at the same time like in Japan and Asian country.