The use of historical and anthropometric data as risk factors for screening of low mBMD & MCI

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Abstract
To evaluate the risk factors which affect bone loss in screening for osteoporosis, interview of anamnestic data (age, marriage status, pregnancies, menopausal age, intake of calcium, vegetables, protein and coffee, excessive use of alcohol and smoking, sedentary habits, family history), medical data, surgical data, followed by measurement of anthropometric variables [weight, height, antero-posterior (AP) thickness at xiphoid level], blood examination (calcium, inorganic phosphorus, alkaline phosphatase), both postero-anterior (PA) hands and lateral thoraco-lumbar radiography were done in 1,182 normal volunteers aged 17-83. From PA hands radiographs, metacarpal bone mineral density (mBMD) and metacarpal index (MCI) were measured by computed X-ray densitometry (CXD) (Bonalyzer, Teijin Ltd., Tokyo). The results showed that the mean of menopausal age in Thai females was 48.86 ± 3.09 years ranging from 39 to 55 years. The average number of children in their family was 2.10. Correlation among anthropometric variables, AP thickness was positive linear correlation to weight/height ratio \(r=0.7878\), p-value <0.005). Weight, AP thickness and body mass index (BMI) significantly increased with aging \(r=0.2456,\ 0.4489\) and 0.3484, p-value<0.005, 0.001 and <0.005), but decreased with height \(r=-0.1030,\ p-value=0.001\). Lower mBMD and MCI were associated with increased age, married female, increased pregnancies, increased AP thickness, decreased vegetable intake, increased protein intake and increased years after menopause. From a multiple regression analysis, the significant factors that can predict the MCI were years after menopause, sex, daily vegetable intake and hormonal replacement. The incidence rate of high risk of developing osteoporosis in females, no vegetable intake and no hormonal replacement subjects occurred 7.50, 2.22 and 2.63 times greater than in males, vegetable intake and hormonal replacement subjects, respectively. In postmenopausal women since 1-2, 3-5, 6-10, 11-15 and >15 years, the incidence rate were 5.24, 14.51, 17.01, 20.86 and 29.76 times greater than the rate of premenopausal women. Concerning perimenopausal women, only 2 of all factors influenced the measured mBMD and MCI. The incidence rate of high risk of developing osteoporosis in women who intake protein >30 g/d and intake medicine (corticosteroid) was 2.96 and 6.16 times greater than <30 g/d protein intake and no medicine intake subjects.

Keywords : Bone Density; Risk Factors

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