

척수재활

발표일시 및 장소 : 10 월 26 일(금) 15:05-15:15 Room D(5F)

## OP3-2-6

### Is it appropriate to measure spine BMD in nonambulatory patients?

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#### Purpose

It is well known that bone loss occurs in nonambulatory patients. However, it is controversial whether bone mass loss of the vertebral column appears in nonambulatory patients. This study was designed to determine whether spine BMD measurements are appropriate by comparing spine BMD and other site BMD in nonambulatory patients.

#### Object and method

BMD was measured from 2014 to 2018 in 15 nonambulatory patients who visited the outpatient department of St. Vincent 's Hospital. There were 9 patients with SCI, 2 with polio, 2 with cerebral palsy, 1 with Charcot–Marie–Tooth disease, and 1 with meningocele. Since most of the participants were pre-menopausal women or men under 50 years of age, we analyzed using the Z-score.

#### Result

The mean of the spine BMD Z-score was 0.07. The mean Z-scores of the femoral neck, wards, and trochanter were -2.68, -2.01, and -2.91, respectively. Correlation analysis between SCI level and Z-score of spine BMD showed that Pearson correlation coefficient was -0.301 and p-value was 0.368. In case of femoral neck, ward, trochanter, there was a significant correlation between the femoral ward and the coefficient of 0.230 (p-value 0.497) 0.690 (p-value 0.019) and -0.052 (p-value 0.880). There was no significant correlation between duration of disease and BMD of spine/femur. Discussion In this study, the average of the spine BMD Z-score was in the normal range, while the mean Z-scores of all femur areas were below expected range for age. In 1988, there was a study of no BMD change in spine, and the reason for this was thought to be due to the fact that many SCI patients could be seated. Subsequent studies also suggested that BMD did not accurately reflect the state of spine due to degenerative changes in spine. To compensate for this, qCT can be used, but qCT is not recommended as routine test because of precision, radiation dose, and cost, etc. Therefore, it is recommended that BMD measurement be performed other than spine, and it is best to measure at distal femur according to Leslie R et al. The first limitation of this study is that the sample size is small. The sample size was too small to control the cofactor such as ASIA level and age. Second, we could not analyze whether the fracture risk of spine was actually low or because of the limit of the dual-energy x-ray absorptiometry.

**Conclusion**

In nonambulatory patients, BMD in spine is not useful because it does not adequately reflect the fracture risk. A follow-up study of why BMD is normal in spine should be done