A comparison study on the change in the x-ray based morphological trends of lumbar spine on sitting posture using just a chair and chair with 3 types of sitting support devices in normal individuals

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Up to date, it is not easy to find out the studies proving what kind of sitting posture is helpful to maintain balanced spine and how to sit on a chair without heavy load concentration at specific part of lower lumbar spine. Also, it is very important to understand the morphological trends of lumbar spine and their changes by using 3 types of sitting support devices (SSD) in normal individuals. Total 30 normal subjects (f:10; m:20) among 55 volunteers were included in this study after obtaining informed consent. Under intensive medical screening, 11 subjects were excluded because of severe back pain history, back surgery history and the other 4 subjects were ruled out for mild or severe lumbar kyphosis. Radiographic measurements were performed by 2 independent researchers on x-ray images. Whole lumbar lordosis (WLL), segmental lordosis (SL) between L1 and S1, lumbar tilt (LT), sacral slop (SS), pelvic tilt (PT) and pelvic incidence (PI) were measured on x-ray images when sitting on a chair with/without 3 different types of SSD leading anterior tilting of pelvis. Standing lumbar lordosis and sitting posture lumbar lordosis were the reference values. IBM SPSS Statistics version 20 was used for one-way ANOVA comparing 5 different situations such as standing, sitting just on a chair, sitting on the chair using sitting supporting device 1, 2 and 3. The mean value was 32.4 (SD, 7.13) in age, 171.43 (SD, 5.98) in height, 65.63 (SD, 10.03) in weight and 22.25 (SD, 2.70) in BMI. In one-way ANOVA, there were significant differences (p<0.05) between sitting lumbar lordosis without SSD and with sitting support devices in WLL and SL (L2-3, L3-4, L4-5 and L5-S1). It is concluded that sitting supporting device making pelvic anterior tilting has the significant restoration effect of lumbar lordosis on sitting posture closed to that on standing posture. It is needed to conduct larger sample size study in future.

Biography

Jee-Soo Jang is the President of Suwon Nanoori Hospital (Spine and Joint). He is specialised in areas of complex multplanar spinal deformity: adult deformity, anterior and/or posterior approaches, osteotomies, spinal tumor. He has completed his Bachelor’s degree and PhD in Medicine from Chung-ang University. He had successively filled as a President in Seoul Wooridul Hospital, Cheongdam Wooridul Hospital and Gwangju Wooridul Hospital. He became a Senior Editor in Chief in The Journal of Critical Spine Cases (JCSC).

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