

노인재활

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:08-10:12 Room G(3F)

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Relationship between Oswestry disability index and spino-pelvic alignment in geriatric back pain.

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Objectives

Spino-pelvic malalignment is one of the most prevalent disorders of the geriatric spine. Once the spino-pelvic alignment deviate from normal range, more energy is required for the body to remain balanced without external support. In geriatric population, the vertical line of center of gravity gradually moves forward with aging, which may results in pain, functional disability and changing spino-pelvic alignment. However it is still unknown whether particular patterns of spino-pelvic alignment are more prevalent in back pain patients. In this study, we measured the relationship between Oswestry disability index(ODI) and Visual analog scale(VAS) to determine the effect of various spino-pelvic alignments on the quality of life and function of patients in geriatric back pain patients.

Methods

108 geriatric patients (45 males, 63 females; mean age 62.71±9.21 years) who have experience of back pain were enrolled. Patients who underwent surgical treatment on spine were excluded. The following parameters were measured: On lateral and coronal view of whole spine radiographs, saggital vertical alignment(SVA), pelvic incidence(PI), pelvic tilt(PT), sacral slope(SS), pelvic obliquity(PO) and coronal Cobb's angle[Table 2]. For the evaluation of functional status and pain, ODI and VAS were conducted. Patients were divided into minimal disability group(ODI score≤20), moderate disability group(20<ODI score≤40) and severe disability group(40<ODI score)to identify differences of the spino-pelvic alignment between each group. We used Pearson's Correlation to get correlation between ODI or VAS and Spino-pelvic alignment, and Jonckheere-Terpstra test to analyze an ordered difference in each ODI group.

Results

General characteristics of the participants are described in Table 1. The average of age was 62.71±9.21 years, and the average of VAS was 3.40 ± 3.63. As the result, SVA, PI, PT showed a statistically significant correlation with ODI.[Table 2] None of the spino-pelvic

alignment parameters had correlation with VAS. In the comparison between the ODI group, the higher the SVA, PT, PI and Cobb measured, the higher their ODI scored.[Table 3]

Conclusion

In geriatric back pain patients, SVA, PT and PI have correlation with functional disability measured with ODI. However, VAS, pain itself has no correlation with spino-pelvic alignment. Especially, PT shows significant difference between ODI groups. For the optimal rehabilitation, consideration of targeted modification to spino-pelvic alignment, especially PT and SVA, should be suggested to reduce functional disability of geriatric patients.

Table 1. Demographics and characteristics of patients (n=108)

Characteristics	Value
Sex Male : Female	45 (42) : 63 (38)
Age (yr)	62.71±9.21
VAS	3.07±2.64
ODI score	27.55±12.83
SVA (cm)	1.84±3.03
PI angle (°)	53.34±10.48
PT angle (°)	18.95±3.48
SS angle (°)	34.38±7.00
PO angle (°)	2.21±1.48
Cobb angle (°)	4.48±4.41

VAS, Visual Analogue Scale; ODI, Oswestry Disability Index;

SVA, Saggital Vertical Alignment; PI, Pelvic incidence; PT, Pelvic tilting;

SS, Sacral slope; PO, Pelvic Obliquity

Table 2. The relationship between ODI, VAS and Spino-pelvic alignment.

	SVA	PI	PT	SS	PO	Cobb
ODI	0.193*	0.303*	0.314*	0.051	0.008	0.185
VAS	0.184	0.095	0.053	0.074	0.071	0.170

VAS, Visual Analogue Scale; ODI, Oswestry Disability Index;

SVA, Saggital Vertical Alignment; PI, Pelvic incidence; PT, Pelvic tilting;

SS, Sacral slope; PO, Pelvic Obliquity

Values are shown with correlation coefficient.

*means statistically significant at 0.05 level.

Table 3. Comparison of Spino-pelvic alignment between ODI group

	Minimal disability(n=44)	Moderate disability(n=43)	Severe Disability (n=21)	P-value
SVA	1.07±2.59	2.28±3.14	2.50±3.45	0.041*
PI	50.21±9.19	53.12±9.77	59.68±10.48	0.004*
PT	15.95±6.87	19.56±9.57	23.99±9.49	0.001*
SS	34.26±6.79	33.87±7.57	35.69±6.36	0.618
PO	2.35±1.43	1.90±1.30	2.57±1.83	0.594
Cobb	3.50±3.30	4.67±4.85	6.11±5.10	0.021*

VAS, Visual Analogue Scale; ODI, Oswestry Disability Index;

SVA, Saggital Vertical Alignment; PI, Pelvic incidence;

SS, Sacral slope; PO, Pelvic Obliquity

*means statistically significant at 0.05 level on Jonckheere-Terpstra test