

about the relation between PPTS and respiratory function is not yet enough. To understand the relevance of PPTS and respiratory function, we aimed to investigate how PPTS affects on thoracic motion.

[Methods] Subjects were 16 healthy men (26.6 ± 2.9 yo). The pelvis was positioned at 0, 10, 20 and 30 degrees posterior tilt, and changes in thoracic spine tilt angle, thoracic volume change, respiratory function were measured. We calculated the thoracic volume, thoracic spine tilt angle change from the amount of the displacement of markers on the thoracic. Respiratory functions were measured by spirometry. One-way analysis of variance with repeated measures was used to compare the differences four sitting postures. The Bonferroni correction was used for post-hoc test.

[Results] As for thoracic spine tilt angle, the upper level leaned forward and the lower level leaned backward as the pelvic inclination angle increases. Also, thoracic volume change significantly decreased as the pelvic inclination angle increases. Respiratory functions were significantly lower in the 30° than the 0°.

[Conclusions] These results suggest that the increasing the pelvic inclination increases the thoracic spine tilt angle and decreases the thorax movement. The morphological changes in PPTS may cause decrease of respiratory functions.

P3-29.

Human dental pulp stem cells in elderly patients for bone regeneration using a helioxanthin derivative

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Background : Human dental pulp stem cells (DPSCs) were identified in 2000 (Gronthos et. al., Proc Natl Acad Sci U S A.) and have the ability to differentiate into multiple lineage cell types, including adipogenic, neurogenic, and osteogenic cells. DPSCs can be collected

from extracted teeth and are now considered to be a type of mesenchymal stem cell with higher clonogenic and proliferative potential than bone marrow stem cells. Previous study has described the osteogenic ability of DPSCs that were isolated from only young patients. However, in fact, the elderly patients requires for bone regenerative therapies such as the alveolar bone defects resulting from periodontal disease than young ones. We previously reported that 4-(4-methoxyphenyl) pyrido [4,3,0 : 4,5]thieno[2,3-b]pyridine-2-carboxamide (TH), a helioxanthin derivative, induces osteogenic differentiation of DPSCs derived from young patient. However, the effects of TH on the osteogenic differentiation ability of DPSCs derived from elderly patients remain unknown. Therefore, this study aimed to compare the osteogenic differentiation ability of TH-induced DPSCs from young patients and elderly patients toward the clinical approach of DPSCs for elderly patients.

Methods : DPSCs were obtained from dental pulp of the teeth of healthy young patients (18-39 years old) and healthy elderly patients (40-67 years old), and cultured in conventional medium and osteogenic medium with or without TH. We evaluate the characteristics, proliferation, osteogenic differentiation of DPSCs from both young patients and elderly patients by flow cytometry, real-time polymerase chain reaction.

Results : We demonstrated that osteogenic conditions with TH induce the osteogenic differentiation of DPSCs from elderly patients as efficient as young ones than osteogenic conditions without TH.

Conclusions : Our results suggested that DPSCs from elderly patients also have great potential of osteogenic differentiation same as young patients. Moreover, TH-induced DPSCs upregulate osteogenic differentiation ability, and they can be a useful cell source for bone regenerative medicine not only for young patients but elderly patients.