Relationship between thoracic kyphosis and shoulder muscle strength and shoulder joint motion in male patients with ankylosing spondylitis

Oguzhan Mete[1], Devrim Can Saraç[2], Songul Baglan Yentur[2], Gizem Tore[2], Fulden Sari[2], Nuh Ataş[3], Berna Göker[3] and **Deran Oskay[2]**

[1,2]Ankara Yıldırım Beyazıt University, Turkey

[3]Gazi University, Turkey

Introduction: Ankylosing Spondylitis (AS) is a rheumatologic disease that primarily affects the axial skeleton. Spinal inflammation, increased ossification of the ligaments and syndesmophytes in the spinal column can cause an increase in thoracic kyphosis in the AS patients. Negative effects of thoracic kyphosis on shoulder functions have been reported in studies performed in different populations. The aim of our study is to determine the relationship between thoracic kyphosis and shoulder functions in male patients with AS.

Methods: Twenty-three (23) male participants (age: 41.18±11.89 year, body mass index: 26.25±5.02kg/m2) diagnosed with AS according to the Modified New York criteria were included the study. Thoracic kyphosis angle and shoulder motion were evaluated with digital inclinometer. Strength of shoulder muscles were evaluated with digital hand-held dynamometer. Pearson correlation test and Spearman correlation test were used for statistical analysis.

Results: Thoracic kyphosis angle showed negative correlations with dominant side shoulder flexion active range of motion (AROM) ($p<0.001$; rho:-0.711), abduction AROM (p:0.007; rho:-0.545), external rotation AROM (p:0.008;rho:-0.536) and non-dominant side shoulder flexion AROM ($p<0.001$;rho:-0.768), abduction AROM (p:0.008;rho:-0.540), external rotation AROM (p:0.005;rho:-0.563). There was no correlation between thoracic kyphosis angle and shoulder abduction and flexion muscle strength.

Discussion: As a result of our study, it was determined that in patients with male AS, thoracic kyphosis angle was correlated with shoulder flexion AROM, abduction AROM and external rotation AROM. There are muscular and mechanical connections between the spinal column, scapula, clavicle and humerus. The position changes of these bone structures biomechanically affect each other. We think that as the thoracic kyphosis angle increases, the shoulder mobility decreases in male patients with AS because of this reason. In light of this knowledge, therapeutic approaches to thoracic hyperkyphosis will benefit for the shoulder mobility in AS patients.

Speaker Biography

Songül Baglan Yentur continues her PhD from Gazi University, Turkey and has completed master programme from the same university. She is a research assistant at Gazi University, Turkey.

e: songulbaglan23@hotmail.com

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