FACTORS AFFECTING POSTOPERATIVE SHOULDER BALANCE IN LENKE 1 & 2 ADOLESCENT IDIOPATHIC SCOLIOSIS PATIENTS: A COLLABORATIVE STUDY BETWEEN TWO CENTERS IN MALAYSIA AND JAPAN.

MUN KEONG KWAN[1], CHEE KIDD CHIU[1], PHENG HIAN TAN[1], XUE HAN CHIAN[1], XIN YI LER[1], YUN HUI NG[1], SHERWIN JOHAN NG[1], SAW HUAN GOH[1], YU YAMATO[2], TOMOHIRO BANNO[2], SHIN OE[2], YUKIHIRO MATSUYAMA[2], CHRIS YIN WEI CHAN[1]

[1] *UNIVERSITY OF MALAYA, KUALA LUMPUR, MALAYSIA*
[2] *HAMAMATSU SCHOOL OF MEDICINE, SHIZUOKA, JAPAN*

Background
Postoperative Shoulder Imbalance (PSI) had been found to affect postoperative patient satisfaction and was reported to occur in 6.7% to 55.4% of AIS patients. Authors have reported that medial and lateral shoulder imbalance is distinct phenomenon.

Objective
To identify the factors that would affect medial and lateral shoulder imbalance following PSF in Lenke 1 and 2 AIS patients.

Methods
This study was carried out in 2 tertiary institution in Malaysia and Japan between 2011 and 2015. 153 Lenke 1 and 2 AIS patients who underwent PSF were recruited.

Results
There were significant positive relationship found between preoperative T1 Tilt ($p<0.001, r=0.66$) and Follow Up PT Cobb with Postoperative T1 Tilt ($p<0.001, r=0.42$), Postop PT Cobb with Postop CA ($p<0.001, r=0.32$), MT Flexibility/PT Flexibility with Postop RSH ($p=0.036, r=-0.16$). There were significant negative relationship between Preop MT Cobb SB ($p=0.006, r=-0.23$) and PT Correction Rate ($p=0.041, r=-0.13$) with postop RSH. When T1 Tilt was stratified into balanced/imbalanced group, the following parameters: Lenke Type, Preop PT Cobb, Preop MT Cobb, Preop PT side bending Cobb, Preop T1 and FU PT Cobb showed significant intergroup differences. When CA was stratified into balanced/imbalanced group, the following parameters: Preop CA and FU PT Cobb showed significant intergroup differences ($p<0.05$). For RSH, only follow up MT Cobb showed significant intergroup differences ($p<0.05$).

Conclusions
Preop T1 tilt had strong correlation to postop T1 tilt. Higher residual PT cobb angle was correlated with postoperative T1 tilt and CA. Preop MTSB angle, PT correction rate and MT/PT flexibility had weak correlation with postop RSH.