

## **Biomarkers Of Muscle Damage Increased In Anterolateral Vs. Direct Lateral Approach To The Hip, But No Correlation To Clinical Outcome. Results From A Randomised Clinical Trial In Patients With A Displaced Femoral Neck Fracture**

Trauma / Hip & Femur Trauma / Surgical Treatment

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### **Background**

Performing total hip arthroplasty utilizing minimally invasive surgical approaches (MIS) is increasing. Several methods have been suggested to determine the invasiveness of MIS approaches to the hip, among them MRI and gait analysis. The evaluation of biomarkers has been proposed as an objective marker of muscle damage and inflammation, although the association to clinical outcome is not clear.

### **Objectives**

To compare increase in serum creatine kinase and its association to functional outcome between the muscle sparing anterolateral approach and the direct lateral approach to the hip in patients with displaced femoral neck fracture.

### **Study Design & Methods**

This study was part of an ongoing level I single center randomized study. 150 Patients between 70 and 90 years of age with femoral neck fractures were allocated to an uncemented hemiarthroplasty inserted through a direct lateral (n=75) approach or an anterolateral (n=75) approach. Mean age was 81 (69-90) years, 109 were women. Serum creatine kinase levels were measured and related to surgical parameters, Timed up and Go Test, Harris Hip Score and the presence of a Trendelenburg sign using correlation analysis.

### **Results**

At 24 hours there was a mean increase from baseline in total CK of 228 U/L (95% CI 187 to 269; P<0.001) and at 48 hours 202 U/L (95% CI 154 to 251; P<0.001). There was a difference between groups at 24 hours regarding change in CK with higher levels in the anterolateral group (mean difference 80 U/L; 95% CI -0.5 to 162; P=0.05). Likewise, at 48 hours mean difference was 117 U/L; 95% CI 22 to 212; P=0.01. No correlation was found between CK values and objective functional assessments.

### **Conclusions**

Compared with the direct lateral approach, the anterolateral approach caused higher levels of

post-operative CK. However, there was no correlation between levels of CK and functional outcome.