

Paper #75

## Preoperative Lymphocyte Monocyte Ratio Affects Outcome after Rotator Cuff Repair

**Yaying Sun, MD, CHINA**  
Shaohua Liu, MD, CHINA  
Shuang Cong, MD, CHINA  
Zheci Ding, MD, CHINA  
Jinrong Lin, MD, CHINA  
Jiwu Chen, MD, PhD, CHINA

Department of Huashan Hospital, Fudan University  
Shanghai, CHINA

### Summary:

Systematic inflammation, as indicated as Preoperative lymphocyte monocyte Ratio, Affects Outcome After Rotator Cuff Repair

### Abstract:

### Background

Risk factors for poor outcome following arthroscopic rotator cuff repair remain to be elucidated. Previous studies find that disorders with systematic inflammation, such as diabetic mellitus, osteoporosis, and hyperlipidemia, are closely related to poor functional recovery. Therefore, the relationship between preoperative lymphocyte monocyte ratio (LMR), an index for systematic inflammation, and postoperative range of motion, pain, and functional score is measured.

### Methods

A consecutive cohort of small to medium-sized rotator cuff tear repaired by the same surgeon from January 2014 to January 2016 were prospectively included. Demographical information, characteristics of rotator cuff tear, intra-operative management, and past medical history were recorded. Preoperative LMR was calculated as lymphocyte count divided by monocyte count. During the follow-up, shoulder range of motion, pain visual analog scale (VAS), ASES Score, Constant-Murley Score, and Fudan University Shoulder Score (FUSS). An ASES score less than 80 indicates poor outcome. Multiple linear regression analysis was used to identify the relationship between LMR and post-operatively shoulder measures. Receiver Operating Characteristics (ROC) curve was made to determine the diagnostic value of LMR for poor outcome. P value less than 0.05 suggests statistical significance.

### Results

93 patients were analyzed. After adjusting for age, gender, dominance, symptom duration, surgical technique, tear size, retraction size, shoulder stiffness release, long head of biceps tendon procedure, comorbidities, and bad habits, both biceps tendon procedure ( $P = 0.018$ ) and LMR ( $P = 0.020$ ) were found to be significantly associated with VAS. LMR was the only independent factor positively associated with postoperative ASES Score ( $P=0.020$ ), Constant-Murley Score ( $P=0.006$ ), FUSS Score ( $P=0.003$ ), abduction ( $P=0.039$ ), external rotation ( $P<0.001$ ), and internal rotation ( $P=0.008$ ) by linear regression. ROC curve showed that the predictive value of PLR for poor outcome was 6.90, with a specificity of 90%.

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### Conclusion

For small to medium-sized rotator cuff tear, Preoperative lymphocyte monocyte ratio, an index of systematic inflammation, and intraoperative biceps tenodesis/tenotomy are independently associated with postoperative pain. Lymphocyte monocyte ratio is positively associated with shoulder range of motion and functional recovery. A lymphocyte monocyte ratio lower than 6.93 is predictive of an ASES score less than 80 with a specificity of 90%.