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軟組織超音波檢測運用於偏癱患者肩關節之評估
Ultrasonographic Findings in Hemiplegic Shoulder

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Introduction:Shoulder pain is a common complication in hemiplegic patients after stroke. The causes of the shoulder pain include shoulder subluxation, shoulder-hand syndrome, adhesive capsulitis and rotator cuff lesion. The exact mechanism of development of shoulder pain is still uncertain. Radiography with contrast has been used to obtain a quantitative measurement of shoulder subluxation and investigation of rotator cuff tear in post-stroke patients. However, the characters of low cost, convenience, and lack of risk make dynamic ultrasonography an excellent imaging tool for evaluating the shoulder of hemiplegic patient. The purpose of this study is to use ultrasound to evaluate the structure of hemiplegic shoulder especially the condition of rotator cuff in stroke patients.

Materials and Methods:Post-stroke hemiplegic patients were recruited from the clinic in a teaching hospital. Basic data including the duration of stroke, and clinical symptom were collected. Ultrasonography was performed using an ultrasonographic equipment with a 7–12 MHz linear array transducer (LOGIQTM5 PRO, GE medical system). The distance measurement of acromion-humeral distance was based on the method designed by Gi-Young et al. We measured the lateral distance (LD) between the lateral border of the acromion and the greater tuberosity and the anterior distance (AD) between the anterior border of the acromion and the lesser tuberosity in the affected and unaffected shoulders. The ultrasonograhic findings of rotator cuff tendon abnormalities were described as normal, a tendinopathy, a partial-thickness tear, and a full-thickness tear.

Results:There were seven stroke patients recruited in this study. All the patients complained of shoulder pain in hemiplegic side. The Mean time from stroke to examination performed was 42.29 days (SD: 9.29). In the affected shoulders of all patients, ultrasonographic findings revealed 1 patient with partial-thickness tear, 4 patients with tendinopathy and 2 patients without the ultrasonographic abnormalities of rotator cuff. The AD and LD of affected shoulder (AD: 3.12+0.51 cm; LD: 2.87+0.27 cm) were greater than those of the contralateral shoulder (AD: 2.40+0.47 cm; LD: 2.12+0.33 cm).

Discussion:The prevalence of the shoulder pain has been reported varies from 21% to 72% in stroke patients. In our study, we found that the percentage of abnormal ultrasonographic findings in hemiplegic shoulders is high (5/7). The distance between acromion and humerus is greater in hemiplegic side. The well-known causes of the post-stroke shoulder pain included shoulder subluxation, shoulder-hand syndrome, adhesive capsulitis and rotator cuff lesion. However, the effected treatment protocol of hemiplegic shoulder pain remained uncertain due to the variability of the real cause of the shoulder pain. Ultrasound examination is a non-invasive and convenient tool to evaluate the soft tissue structure in shoulder. We recommended ultrasonographic examination as the first choice in the evaluation of hemiplegic shoulder pain.

Conclusions:Ultrasonography is a convenient diagnostic tool to evaluate the soft tissue structure of shoulder in hemiplegic patients. Early evaluation of hemiplegic shoulder pain with ultrasound will provide more information in clinical management.