

AB017. Experimental study of pulsed ultrasound in the treatment of stress urinary incontinence

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Abstract: Low intensity pulsed ultrasound (LIPUS) has shown its ability of restoring soft tissue injury in a number of studies, but little is known about its molecular mechanism. Recent studies reported the regulatory effect of LIPUS on stem cell activation. We investigated the possible therapeutic effect of LIPUS in a stress urinary incontinence (SUI) rat model and its influence on myogenic satellite cells. Fifty Sprague Dawley rats underwent vaginal distension and bilateral ovariectomy mimicking partum injury and menopause to construct SUI models, which were further randomized into 100 mW/cm²

LIPUS, 200mW/cm² LIPUS, 300 mW/cm² LIPUS and none-treatment control subgroups with ten rats per subgroup. Ten rats served as mock operation control. Here we found the leak point pressure and bladder capacity were restored in 200mW/cm² LIPUS and 300 mW/cm² LIPUS groups, but not in 100 mW/cm² LIPUS group. More robust striated muscle regeneration was observed in 200mW/cm² LIPUS group comparing with the SUI none-treatment group. Moreover, we found LIPUS activated the myodifferentiation of muscle satellite cells, which is correlated to p38 phosphorylation level. These results show LIPUS ameliorate the symptom of SUI and activate satellite cell myodifferentiation.

Keywords: Low intensity pulsed ultrasound (LIPUS); stress urinary incontinence (SUI); stem cell activation

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