Exercise and PRP promising for shoulder pain in wheelchair users with spinal cord injury

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Researchers in regenerative rehabilitation conducted a pilot study of a new approach to the treatment of treatment-resistant shoulder pain in wheelchair users with spinal cord injury (SCI) and rotator cuff disease. Results were encouraging in the study of six participants who received a combination of a single injection of platelet-rich plasma (PRP) into the supraspinatus tendon and a home-based exercise program of stretching and strengthening.

The article, "Ultrasound-guided platelet-rich plasma injection for the treatment of recalcitrant rotator cuff disease in wheelchair users with spinal cord injury: A pilot study", was epublished ahead of print on May 7, 2020 by the *Journal of Spinal Cord Medicine*.

The authors are scientists with expertise in regenerative rehabilitation and SCI rehabilitation: Trevor Dyson-Hudson, MD, and Nathan Hogaboom, Ph.D., at Kessler Foundation, Reina Nakamura, DO, of the University of Michigan, Alon Terry, MD, of Summit Medical Group, Summit, NJ, and Gerard Malanga, MD, from Kessler Institute for Rehabilitation and the New Jersey Regenerative Institute.

The study was conducted at the Derfner-Lieberman Laboratory for Regenerative Rehabilitation Research in the Center for Spinal Cord Injury Research at Kessler Foundation, both under the direction of Dr. Dyson-Hudson, MD. Dr. Hogaboom is co-director of the Derfner-

Lieberman Laboratory.

The objective of the pilot study was to evaluate the safety and treatment effect of PRP injection in wheelchair users with SCI and shoulder pain unresponsive to conservative treatment. Six male participants competed the study (3 paraplegia; 3 tetraplegia). All were wheelchair users with a history of chronic SCI (26.7 year ± 11.1 years) and bilateral shoulder pain (> 6 months).

Treatment consisted of bilateral injection of PRP into the shoulder joints. After a 24-hour rest period, participants started a stretching regimen that transitioned to a strengthening protocol at one-month post injection. Followup was conducted at 4, 8, 12, and 24 weeks, consisting of ultrasound evaluation, physical examination, and assessment of pain level. All participants reported decreased pain, with three describing their pain as 'much improved' and one 'very much improved'. No adverse effects were reported.

In this population, shoulder pain is a common cause of disability that hinders functional independence, according to Dr. Dyson-Hudson, director of the Center for Spinal Cord Research. While surgery is an option for pain that fails to respond to conservative treatment, drawbacks include the costs and the functional limitations during prolonged post-operative recovery.

"Conservative treatments that provide alternatives to surgery are needed for this population," he emphasized. "Injection of PRP, which may promote healing of the injured tendon, combined with a graduated exercise program, is a potential option for these individuals. Based on our pilot study, a larger randomized controlled trial is warranted."

More information: Trevor A. Dyson-Hudson et al, Ultrasound-guided platelet-rich plasma injection for the treatment of recalcitrant rotator

cuff disease in wheelchair users with spinal cord injury: A pilot study, *The Journal of Spinal Cord Medicine* (2020). DOI: 10.1080/10790268.2020.1754676