

Anterior Cingulate Implant for Alcohol Dependence: Case Report

De Ridder D. *et al.*

Neurosurgery 2016 Jun;78(6):E883-93. doi: 10.1227/NEU.0000000000001248.

In this study, the authors offered a new treatment for alcohol dependence. They reported the findings of a treatment-intractable, alcohol-addicted patient with associated agoraphobia and anxiety. Functional studies were performed as a means to localize craving-related brain activation and identify a target for repetitive transcranial magnetic stimulation and implant insertion. Repetitive transcranial magnetic stimulation of the dorsal anterior cingulate cortex with a double-cone coil transiently suppressed patient's very severe alcohol craving for up to 6 weeks. For ongoing stimulation, two "back-to-back" paddle electrodes were implanted with functional magnetic resonance imaging neuronavigation guidance for stimulating bilateral dorsal anterior cingulate cortex. The patient remained free of alcohol intake and relieved of agoraphobia and anxiety for more than 18 months, associated with normalization of electroencephalogram in the stimulated area. He perceived mental freedom by not being constantly focused on alcohol.

Larger studies are warranted to explore this potentially promising avenue for treating intractable alcohol dependence with or without anxiety and agoraphobia.

Money Management Activities in Persons with Multiple Sclerosis

Goverover Y. *et al.*

Arch Phys Med Rehabil. 2016 May 27. pii: S0003-9993(16)30188-5. doi: 10.1016/j.apmr.2016.05.003.

The aim of this study was to explore the money management problems in patients with multiple sclerosis, and to investigate the factors that contribute to these problems. This cross-sectional study included 30 adults with multiple sclerosis and 23 healthy controls. All subjects were assessed using a battery of neurophysiological tests, a money management survey, and a functional test for money management skills. The outcomes of patients were compared with those of healthy controls. Money management problems were highly observed in patients with multiple sclerosis than in healthy controls, and these problems were highly correlated with impaired cognitive functions. Additionally, the findings showed that self-report of functional status was importantly correlated with self-reported money management skills. The money management skills seemed to be impaired in subjects with multiple sclerosis because self-management of persons was required with sufficient processing speed abilities and executive-attentional abilities. Future studies are needed to understand the nature of these problems.

* This update summarizes selected articles that were published in 2016 in distinguished medical scientific journals.

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Durability of Vaccine-Induced Immunity Against Tetanus and Diphtheria Toxins: A Cross-Sectional Analysis

Hammarlund E. *et al.*

Clin Infect Dis 2016 May 1;62(9):1111-8. doi: 10.1093/cid/ciw066. Epub 2016 Mar 21.

This study aimed to examine the current 10-year booster vaccination against tetanus and diphtheria. They evaluated the magnitude and duration of immunity to Tdap vaccine to figure whether antibody responses decreased more rapidly in an older population. In previous studies, protective antibody titer was reported as ≥ 0.15 IU/mL for tetanus. Researchers believed that the threshold values of previous studies likely underestimated the levels of protection. In this cross-sectional survey, Hammarlund and colleagues performed analysis of serum antibody titers in 546 adults. They reported that approximately 97% of the population was seropositive to tetanus and diphtheria. Titers of antibody to tetanus declined with an estimated half-life of 14 years (95% confidence interval, 11–17 years), while titers of antibody to diphtheria were more lasting and declined with an estimated half-life of 27 years (18–51 years).

Mathematical analysis of the study predicted that 95% of the population would remain protected against tetanus and diphtheria for ≥ 30 years without necessitating booster vaccination. Based on these results, changing from a 10-year to every 30-years vaccination schedule, the U.S. government can save approximately \$280 million per year in healthcare costs.

Intra-Articular, Single-Shot Hylan G-F 20 Hyaluronic Acid Injection Compared with Corticosteroid in Knee Osteoarthritis

A Double-Blind, Randomized Controlled Trial

Tammachote N. *et al.*

J Bone Joint Surg Am, 2016 Jun 01; 98 (11): 885 -892 . <http://dx.doi.org/10.2106/JBJS.15.00544>

The purpose of this study was to compare the efficacy of hyaluronic acid (hylan G-F 20) with triamcinolone acetonide as a single intra-articular injection for knee osteoarthritis. This study was a prospective, randomized, double-blind clinical trial. Participants with symptomatic knee osteoarthritis were recruited. They were randomized to receive a single-shot, intra-articular injection of either 6 mL of hylan G-F 20 or 6 mL of a solution comprising 1 mL of 40-mg triamcinolone acetonide and 5 mL of 1% lidocaine with epinephrine. The primary outcomes were knee pain severity, knee function, and range of motion at 6 months. Ninety-nine patients were assessed before injection and underwent a 6-month follow-up. The patients and evaluators were blinded.

Triamcinolone acetonide provided similar improvement in knee pain, function, and range of motion compared with hylan G-F 20 at the 6-month follow-up, with better pain control in the first week and better knee functional improvement in the second week.