SPINAL CORD INJURY

VA researchers are studying the biological processes involved in spinal cord injury (SCI) in hopes of finding a cure. They also are working to develop better treatments and adaptive technologies for Veterans with SCI. Another focus of research is addressing the medical complications that often develop as a result of this disability. These include, for example, respiratory problems, pressure ulcers, digestive complications, and circulatory problems.

EXAMPLES OF VA RESEARCH ADVANCES

BRAINGATE HAS STAYING POWER—BrainGate technology uses an array of 100 tiny microelectrodes implanted in the brain to pick up brain signals. An external computer decodes the signals and translates them into commands for electronic or robotic devices. A VA research team in Providence reported on a research participant who had the electrodes implanted 1,000 days before the study began. The team then completed five days of testing, showing that the system was still providing useful signals that allowed the participant to control a computer cursor simply by thinking about it. The team has been testing the system in people paralyzed by stroke, spinal cord injury, or ALS. Future work will seek to use BrainGate as a control system for high-tech prosthetic arms.

OTHER CONDITIONS BOOST MORTALITY RISK—Veterans with SCI plus psychosis or a substance use disorder have an increased risk of death, found a VA group from East Orange, N.J. They analyzed five years of data on more than 8,300 Veterans with spinal cord injury. Veterans with psychosis had a 47 percent increased risk of death. Those with an alcohol use or drug use disorder were 30 percent more likely to die over the five-year period. The authors suggest further studies focus on whether mental health and substance use treatment could improve survival in this group.

LUNG FUNCTION LINKED TO INFLAMMATION—In Veterans with chronic SCI, low lung function was associated with high levels of two proteins that indicate systemic inflammation. The Boston VA team studied 59 Veterans and controlled for the effects of obstructive lung disease, smoking, body mass index, and SCI severity. Levels of IL-6 and C-reactive protein were highest in Veterans with the poorest results on tests of lung function. The results suggest that lung dysfunction after SCI is related not only to the physical injury but also to body-wide inflammation. Respiratory problems are the leading cause of death in people with SCI; this research opens a new avenue to potential treatments.

★ **FACTS ABOUT SPINAL CORD INJURY**—*Spinal cord injuries impair the brain's ability to send messages to the rest of the body. These injuries can result in paralysis, loss of feeling, chronic pain, and other serious medical problems. Spinal cord injuries are estimated to affect as many as 296,000 Americans, with 10,000 new injuries occurring each year. The average age at the time of injury is 39, so many patients live with the effects of these injuries for decades. VA cares for more than 25,000 Veterans with spinal cord injuries or disorders, making it the largest integrated health care system in the world providing spinal cord care.*