For People with Severe Burn Injuries, Cognitive and Communication Problems May Be Common

About half a million Americans are treated for burn-related injuries each year. A burn can result from exposure to a fire or contact with hot liquids, chemicals, or electricity. Although the burn injury itself is often treatable, burn injury survivors may have lasting functional challenges. These can include problems with cognition—thinking, remembering, or solving problems—due to the effects of inhaling smoke or toxic fumes, loss of oxygen, anesthetic use, or other medical complications. These cognitive problems can make communication difficult for a person with burn injury. In a recent NIDILRR-funded study, researchers looked at how common it is for people with burn injuries to develop cognitive problems that affect communication, and how often these problems persist after inpatient rehabilitation. They also wanted to find out who is at most risk for having cognitive problems that persist after rehabilitation.

Researchers at the Boston-Harvard Burn Injury Model System Center analyzed data from 144 adults with burn injuries who had been patients at an inpatient rehabilitation hospital between 2007 and 2013. These patients were assessed on their memory and problem-solving abilities, both when they were first admitted for rehabilitation and when they were discharged. Half of the patients received speech therapy during their rehabilitation, where their cognitive and communication skills were assessed at the start of their treatment and then at discharge. They worked with a speech-language pathologist, whose role is to identify and treat cognitive difficulties that can influence communication skills. The researchers examined the number of patients who had significant cognitive and communication problems to see how often these problems occurred. They also compared these patients' scores between admission and discharge to see how much they improved during their stay at the hospital. The researchers also looked at factors that might be related to recovery, such as age or marital status.

The researchers found that most of the patients (79%) had cognitive problems when they were admitted to the rehabilitation hospital. While many of the patients tended to regain their cognitive skills during rehabilitation treatment, about one-quarter of the total sample (27%) still had cognitive problems when they were discharged from the rehabilitation hospital. These patients would have likely needed ongoing support at school, work, or other settings that demand memory and problem-solving skills.

Among the 72 patients who received speech therapy, most improved in their cognitive and communicative abilities, including concentration, memory, and problem solving, between admission and discharge. However, 35% of these patients still had persistent problems in cognition and communication which had an impact on their independence at the time they were discharged.
When the researchers looked at risk factors for recovery from cognitive challenges, they found that the patients with worse cognitive problems at admission were less likely to recover their full cognitive ability by the time of discharge. The older patients and those who were unmarried showed less cognitive recovery during their stay at the hospital than the younger and married patients.

According to the authors, cognitive problems may be common for people with burn injuries. The majority of participants in this study experienced some cognitive problems, including difficulty in concentration, memory, and solving problems. Those problems persisted throughout inpatient rehabilitation for more than a quarter of the participants. Staff at burn rehabilitation facilities may want to screen all new patients for cognitive and communication problems, and make referrals to a speech-language pathologist when needed. Future research may be helpful to understand how speech-language pathologists can best assist people with burn injuries to improve their cognitive and communication abilities.

The authors also noted that social support from a spouse or family members may help improve cognitive recovery. A spouse or family member may help reinforce new skills or strategies learned during therapy so that they can be applied in daily life. Therefore, patients may benefit from including spouses and other family members as part of their rehabilitation team.

To Learn More

The Model Systems Knowledge Translation Center offers a suite of information resources for burn survivors: [http://www.msktc.org/burn](http://www.msktc.org/burn)

The Phoenix Society for Burn Survivors is an international organization supporting people with burn injuries, their families, and professionals who serve them: [https://www.phoenix-society.org/](https://www.phoenix-society.org/)

Additional burn injury support groups may be available at a local hospital, independent living center, or rehabilitation center.

To Learn More About this Study
Hendricks, C.T., Camara, K., Boole, K.V., Napoli, M.F., Goldstein, R., Ryan, C.M., Schneider, J.C. (2016) *Burn injuries and their impact on cognitive-communication skills in the inpatient rehabilitation setting*. Journal of Burn Care and Research. This article is available from the NARIC collection under Accession Number J74664.
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NARIC operates under a contract from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), Administration for Community Living, Department of Health and Human Services, contract #GS-06F-0726Z.