

NEUROPSYCHOLOGY TODAY

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April 2009 Issue – Adult Neuropsychology: Cognitive Rehab After Stroke*

Stroke: Overview

Over 700,000 strokes occur in the US each year. Stroke, or cerebrovascular accident (CVA), is among the leading causes of death in the country, and is the most disabling disease.¹

Stroke is a neurological injury of the brain tissue, caused by a) the blood clot blocking a blood vessel, hence depriving of oxygen a part of the brain (ischemic stroke) or b) the blood vessel in the brain bursting and bleeding (hemorrhagic stroke; see image on page 2).¹

The immediate signs of stroke may include:

- Sudden numbness or weakness (usually on one side of the body)
- Sudden confusion, or trouble forming/understanding speech
- Sudden vision loss
- Sudden dizziness, trouble with walking, loss of balance
- Sudden severe headache for no apparent reason¹

Research shows that high blood pressure, heart disease, diabetes, transient ischemic attacks (small strokes lasting several minutes to a few hours), and smoking are all among the risk factors of stroke.

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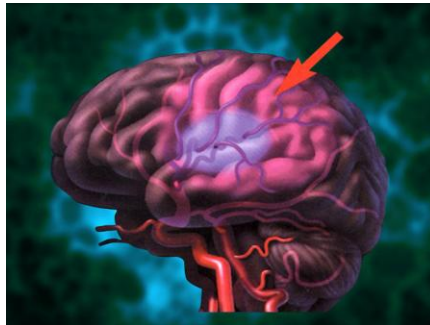
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Residual Neurocognitive Deficits after Stroke

Stroke-related cognitive deficits, referred to as “vascular cognitive impairment” are fairly common. As many as 2/3 of stroke survivors experience cognitive impairment and about 1/3 develop vascular dementia. The risk of vascular dementia is 10 times greater among stroke survivors, compared to individuals without a history of stroke. Vascular cognitive decline develops slowly and gradually, worsening right after stroke.³



Cognitive symptoms following a stroke usually include problems with attention, thinking, judgment, planning, memory, processing speed, language, visuo-motor and visuo-perceptual processing, and lack of awareness of these deficits.^{1,3}

As a result, patients may lose their ability to remember chores and job instructions, learn new skills, comprehend information, make plans, perform multi-step tasks, and engage in other complex cognitive activities.¹

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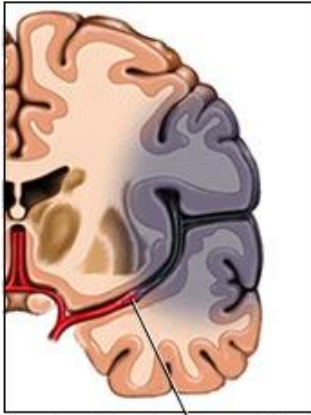
Cognitive Rehabilitation after Stroke

In addition to speech therapy, occupational therapy, physical therapy, psychotherapy, and medication, stroke survivors may greatly benefit from Cognitive Rehabilitation (CR) treatment to decrease their cognitive deficits.³

CR is a non-medicinal treatment that involves individually tailored cognitive exercises developed by a Neuropsychologist to retrain and/or improve cognition through correction of neurocognitive deficits. CR differs greatly from self-initiated, home based cognitive exercises such as computer games, puzzles, etc. CR includes professional close monitoring and adjustment of the treatment process, development of specific exercises that precisely target patients' cognitive deficits and relate to their life and work, and timely feedback to the patients – all to ensure an effective treatment that does not waste time and delivers long-term effect. CR enhances the patients' overall cognitive functioning and, thus, helps retain or regain their employment and increase personal independence.⁴

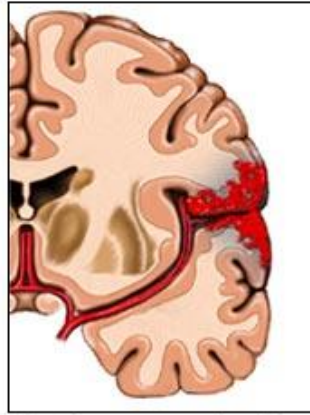
There is a convincing evidence demonstrating the effectiveness of CR for stroke patients.³ Insurance carriers pay increasingly more attention to the published research about CR for neurological patients and many plans now consider it as a covered treatment of choice.

Ischemic stroke



A clot blocks blood flow to an area of the brain

Hemorrhagic stroke



Bleeding occurs inside or around brain tissue

("Stroke: Overview," continued from p. 1)

Many of the medical conditions listed above are especially common among African-Americans, placing this population at a higher risk of having a stroke.¹

In addition, a major risk factor of stroke is older age. Almost three-quarters of strokes occur in individuals 65 years of age or older. The risk of having a stroke doubles each decade after the age of 55.¹ Interestingly, a recent study of nearly 20,000 older adults revealed that premorbid cognitive dysfunction and/or decline are associated with greater risk of having a stroke, independent of cardiovascular conditions. The authors explain that cognitive impairments detected by the neuropsychological exam may be the early markers of milder cerebrovascular injury, which is likely to progress with time, resulting in a stroke.²

According to the National Institute of Neurological Disorders & Stroke, prevention is the best treatment of stroke. Learning about family history of stroke, controlling high blood pressure and managing diabetes, and maintaining a healthy lifestyle may lower the risk of having a stroke.¹

("Residual Neurocognitive Deficits after Stroke," continued from p. 1)

Cognitive dysfunction adds to the burden of physical disability, further diminishing patients' ability to lead productive and independent life. Many stroke survivors are unable to work and require daily assistance to ensure their well-being. In addition, cognitive dysfunction increases the burden on their caregivers, making it more difficult to care for the disabled family members.^{1,3}

Research shows that only 16-20% of patients with vascular cognitive impairment improve in their neuropsychological (NP) functioning without specific treatment. Also, researchers found that when vascular cognitive impairment was exacerbated by depression, poorer recovery and greater risk of mortality were observed. These findings underline the importance of detecting and treating neurocognitive deficits and depression after stroke.³

Mini-Mental State Examination (MMSE) is one of the most frequently used by physicians screening measures of cognitive dysfunction. However, MMSE has been proven to be insensitive to executive dysfunction and mild memory deficits, commonly found

among stroke survivors. More thorough NP exam is needed to identify the extent of vascular cognitive symptoms. NP exam offers an objective, standardized, and well researched measurement of all neurocognitive deficits with specific relation to the patient's premorbid level of functioning and to the current age norm.³

About Dr. Rimma Danov

Dr. Rimma Danov received her PhD in clinical psychology from Adelphi University in NY. She completed her internship in clinical psychology and neuropsychology at Harvard Medical School and postdoctoral fellowship in pediatric and adult neuropsychology in a private clinic affiliated with NJ Medical School and the Robert Wood Johnson Medical Center. She is an assistant clinical professor at NYU School of Medicine, Dept. of Neurology, Penn State University, Dept. of Kinesiology, and Adelphi University, Derner Institute. In the past, she worked as a neuropsychologist for the NJ Devils Hockey Team and was engaged as a co-investigator of TBI in boxers at the NYS Athletic Commission.

Presently, Dr. Danov maintains a full-time private neuropsychology practice where she examines neurocognitive and neurobehavioral functioning of patients 2-90 years of age with various neurological and neuropsychiatric disorders, such as MS, TBI, CVA, Parkinson's, Alzheimer's, dementia, ADHD, PDD, Autism, learning disabilities, seizures, and many others, using state-of-the-art neuropsychological techniques. Dr. Danov also conducts and publishes research in these areas. She is available for medico-legal consultations and testimony.

A study of Cognitive Rehabilitation after Stroke

Because cognitive deficits in stroke survivors contribute to their overall disability, it is important to investigate the treatment options that specifically address cognitive dysfunction in this population.³ Our case-study⁵ demonstrated that Cognitive Rehabilitation (CR) treatment was effective in improving certain cognitive functions of a stroke patient.

Background: The patient was a 67-year old female college graduate with no previous cognitive or health issues. Shortly after a stroke, she developed left-sided body weakness and multiple cognitive problems, which prompted her physician to refer her for a neuropsychological (NP) exam in order to objectively delineate the extent of her neurocognitive deficits for proper treatment planning.

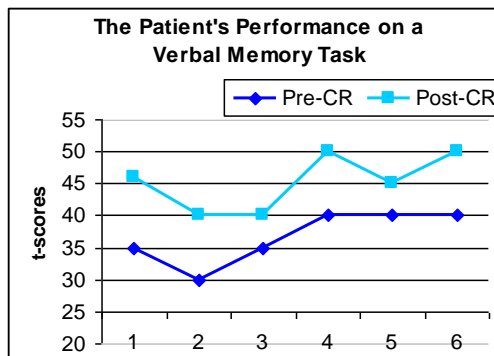
Initial NP exam: The NP exam took place ten months after the stroke and revealed deficits in attention, memory, processing speed, executive functioning, visuospatial and directional-temporal, orientation, and language.

CR treatment: Weekly 1 hour-long CR (45 sessions) involved numerous exercises targeting specific cognitive deficits that were identified during the initial NP exam. The exercises increased in difficulty and complexity as the patient's performance improved. Homework was assigned each week.

Pencil-and-paper tasks were derived from workbooks of activities specifically developed for CR^{6,7} and targeted memory, language, attention, processing speed, and visual perception. Other exercises were created by the treating neuropsychologist to address unique problems of the patient's daily living and to improve her visuospatial orientation (e.g.,

identifying directions); memory (e.g., recalling events from previous week); planning and organization (e.g., outlining steps required to accomplish complex tasks, such as preparing meals; planning the following day); verbal processing and comprehension (e.g., decoding signs "exit/enter," describing meaning); and language (e.g., rapid word generation).

Follow-up NP exam: Following the CR treatment, the patient demonstrated substantial gains in her word finding ability, verbal learning, social comprehension, verbal reasoning, working memory with multitasking, and visuomotor processing speed (see example below). Milder improvements were evident in her visuospatial and non-verbal reasoning, delayed narrative memory, sequencing, and visual attention. Mild decline was observed on some measures of processing speed, immediate memory for faces, immediate narrative memory, and mental flexibility, in addition to a substantial decline on delayed memory for faces. Little or no change occurred in her response inhibition, vocabulary, auditory



The patient was required to repeat the list of 16 words after each of 5 repetitions, after a "distracter" list, and after a 20-minute delay

- 1: Learning throughout 5 trials
- 2: Immediate recall (no cues)
- 3: Immediate recall (with cues)
- 4: Delayed recall (no cues)
- 5: Delayed recall (with cues)
- 6: Recognition (yes/no answers)

attention, and mental math. Her post-CR test scores accounted for normal age-related decline.

After CR treatment, the patient reported improvement in her ability to comprehend reading material, make plans, accomplish daily tasks (e.g., shopping and preparing meals), navigate in stores, find and organize information (e.g., phone numbers), and recall past events. Notably, the patient expressed her satisfaction with the CR process as it not only improved her daily functioning, but also decreased her stress level and social isolation, and enhanced her self-confidence and quality of life.⁵

Works cited:

1. NIH (2009). Know stroke, stroke.nih.gov
2. DeFries et al. (2009). J Am Geriatr Soc 57, 499-05.
3. Canadian Stroke Network (2005-2009). Evidence-based review of stroke rehabilitation, ebrsr.com
4. NIH (1988). Rehabilitation of persons with TBI, nlm.nih.gov.
5. Danov & Jackowski (2008). Arch Clin Neuropsych, 23, 698.
6. Malia et al. (2002). Brainwave-R series (Pro-Ed, Inc.).
7. Tomlin (2002) WALC-2 Cognitive Rehab (LinguiSystems).

Image credits:

1. Background image (pp.1 & 4): Jeff Johnson Biological and Medical Visuals.
2. Brain with stroke (p.1): kued.org
3. Ischemic & hemorrhagic strokes (p.2): Nucleus Communications.

Editor

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Next Issues: May 2009- Learning Disability; June 2009- Parkinson's Disease

We take the following insurance plans:

Aetna	HIP
Americhoice	Magnacare
Amerigroup	Medicare
BCBS	MHN
Cigna	Multiplan
Elderplan	No-Fault
Fidelis	Tricare
First Health	UHC/Oxford
HealthNet	Workers' Comp
Health Plus	1199

Case dependent:

Affinity	GHI HMO
Atlantis	Health First

Each insurance carrier determines the medical necessity of every requested neuropsychological exam differently. Our billing staff determines whether the exam will be covered by the insurance before the exam

begins and works very hard to obtain an authorization, if needed. If you have questions about a plan that is not listed here, contact our office to find out whether we can obtain an authorization or have recently joined that plan.

Languages

We are very much open to diverse cultures in this practice and value the quality of a bilingual neuropsychological exam performed in the patient's native language. Dr. Danov is a native Russian speaker. Her current clinical staff include native **Russian, Spanish** and **Hebrew** speakers.

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