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Neuropsychological Assessment: An Important Tool for Managing ACC

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Each person has a unique set of cognitive strengths and weaknesses, ways of thinking that they find easy and other ways that they find more challenging. For most people, these differences are subtle and may result in descriptions such as being “good at languages,” “good/poor with spatial skills,” “a logical thinker,” “a creative thinker,” or “poor at remembering.” These subtle differences are what gear us to like certain academic subjects and dislike others, guiding us into careers that fit our strengths. When someone has a brain condition, such as ACC, a head trauma, or seizures, those cognitive strengths and weaknesses may be more extreme and more complicated. In these circumstances, more careful strategizing may be required to compensate for the areas of relative weaknesses. It is also common in these circumstances that cognitive problems due to the brain injury or abnormality may be misinterpreted as “emotional” or a “personality problem,” resulting in character judgments rather than understanding and tolerance of the disability. Clearly, the more defined the problem becomes, the easier it is to create compensatory strategies and effectively ward off inappropriate character judgments. Clear definition of cognitive abilities is the goal of neuropsychological assessment. A neuropsychological assessment (or evaluation) is conducted to define an individual’s profile of cognitive strengths and weaknesses in order to better understand (and possibly amend) his or her thought and behavior.

A clinical neuropsychologist is someone with a doctorate in clinical psychology (Ph.D. or Psy.D.) who has specialized training (pre- and post-doctoral) in the area of brain sciences: neuroanatomy, neurological disorders, diagnostic and assessment methods,

and modes of treatment. Although many people (even non-psychologists) may learn to give standardized tests, only the clinical neuropsychologist has been trained to integrate the findings of these tests into a diagnostic profile and recommended course of treatment. Some clinical neuropsychologists are “board certified,” which means that they have passed specialty exams demonstrating their expertise in this field. These individuals will have the initials “ABPP” and/or “ABCN” following their doctoral degree title. However, since these certifications are not necessary, many neuropsychologists may not have them.

A clinical neuropsychological evaluation typically is requested by a physician, rehabilitation staff, another type of psychologist, a legal professional, or an educator. The purpose of the assessment will vary slightly according to the presenting condition and the referral question. Most commonly, neuropsychological evaluation is requested to assess the extent to which brain damage has affected mental functioning, to aid in determining the area of the brain involved, to aid in developing a treatment/rehabilitation plan, to clarify cognitive strengths and weaknesses, or to aid in developing education plans. The clinical neuropsychologist may be a member of a team of care providers who will implement these suggestions, or he/she may simply be called as an outside consultant asked to assess the patient and submit a report.

There are some areas of overlap between the comprehensive neuropsychological evaluation and evaluations conducted by other professionals. For example, a speech/language pathologist examines language skills, an educational psychologist evaluates academic abilities, a physical therapist and an occupational therapist may evaluate various

motor abilities related to daily living, and a neurologist typically examines basic mental abilities with simple probes and screening tests. What makes these professionals distinct from a clinical neuropsychologist is either the range or depth of testing they conduct.

Speech/language pathologists, educational psychologists, physical therapists, and occupational therapists typically go into greater depth within a smaller range of abilities. The neuropsychologist covers all of these areas of ability but might not go in depth with any particular one unless it is an area of concern. (Even then, a particular deficit may require assistance from the appropriate specialist.) Likewise, in addition to the scanning and medical tests conducted by a neurologist, he or she is also likely to screen for major impairments in a few cognitive abilities. However, unlike the neuropsychologist, a neurologist does not utilize the standardized testing procedures that allow detection of more subtle cognitive patterns and comparison across large statistical samples. Thus, a neurologist may make a referral for neuropsychological testing to clarify the cognitive deficits underlying a deficit seen in the neurological exam.

As many parents know, neurologists seem to have minimal knowledge about the cognitive ramifications of ACC. This is because no large-scale studies have been done on ACC. Through multiple case studies, it has become apparent that there are many commonalities in the cognitive abilities and disabilities of individuals with ACC. Dr. Warren Brown, Dr. Lynn Paul, and Drs. Gary and Kathryn Schilmoeller continue to study these commonalities (within a group of individuals whose primary diagnosis is ACC) and will present findings in future editions of *The Callosal Connection*.

Despite the similarities, each individual with ACC has unique characteristics. The goal of neuropsychological evaluation is to clarify the particular pattern of strengths and weaknesses present in the case at hand and then to target specific abilities for intervention. This information will likely be helpful to all professionals treating the individual with ACC.

A neuropsychological evaluation can be requested by a physician, school, legal professional, a parent, or the patient. The likelihood of insurance reimbursement for such testing may vary, often depending on who requests the assessment. Once the referral is made, from one to four evaluation sessions may be scheduled. (The length of evaluations vary.) A comprehensive evaluation includes testing attention, memory, sensory-motor skills, visual perception, language, intellect, reasoning, social behavior, personality, and emotions. It is particularly important in ACC to assess pragmatic language, problem-solving skills, and social communication. All tests administered have been standardized on individuals without brain abnormalities, so that all scores are compared with “normal” functioning. After a lengthy testing process and detailed scoring analysis, a report describing the individual’s performance relative to the “normal” population will be available and delivered to the referral source. As the patient or parent, you also may request feedback from the neuropsychologist, either through a meeting or a report. ☺

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Learning to Ride a Bike – One Step at a Time

By Karla, mother of Ingrid. The family resides in New York state.

Our daughter, who was diagnosed within hours after birth with complete callosal agenesis, is now 14. We wondered then what kind of life could be anticipated for her. Would she be able to learn? What sorts of skills and knowledge would she be able to acquire?

Over the years, we have realized that with whatever public or private schooling we choose for our daughter, we still need to be her primary advocate and serve as her learning coordinator. We have had to learn how she learns and both manage and supplement the educational process in her life.

In short, we have discovered that much of her learning can be helped by breaking the tasks and concepts into the smallest pieces possible. In addition, extra repetitions help to solidify the knowledge or skill. One example of her learning style that we'd like to share with you is how Ingrid learned to ride a bike.

Like most kids, Ingrid started with a tricycle and soon progressed to a bicycle with training wheels. She stayed with the training wheels for a very long time. We had a second bicycle without training wheels, and we hoped it would inspire her, but we couldn't seem to help her make the transition. She was extremely fearful. In addition, she depended on the training wheels for balance.

Finally, it dawned on us. There were too many separate tasks that apparently overwhelmed her and thus she couldn't assimilate them. Some of those separate skills of bike-riding include:

- how to get up on the seat
- how to pedal the bike forward
- how to propel the bike fast enough so it doesn't tip
- how to steer when the bike is going fast enough
- how to brake
- how to stop
- how to dismount (without tipping or falling over)
- how to get on with a running start
- how to balance

- how to watch what's going on around you when you're thinking about all of the above.

For Ingrid to make progress on the bike, we had to isolate and introduce the tasks one at a time. After this realization, her progress on the bike was steady and quick. The biggest hurdle to overcome was how to maintain her balance without panicking when the bike tipped either way. We took her to a secluded road with a slight incline where she could ride down without pedaling. This allowed her to concentrate on turning the wheel in the correct direction if she started to tip. We got her started by putting her on the bike and then ran alongside of her. She got the hang of it the first day we tried.

The first difficulty to appear after this achievement was how to stop and get off her bike; she didn't know what to do, so she panicked and fell over sideways. She knew that when going fast enough, one doesn't tip over. But just before the bike comes to a stop, you're left vulnerable to tipping unless you get off the bike or step down. A decision has to be made: Should I lean to one side and balance on one foot while staying on the seat, or should I hop off the seat and straddle the bike frame, one foot on each side? We had to pick one way to teach her to avoid confusion. Our first attempts had Ingrid hopping off the bike much too soon, sometimes dragging her feet to finish stopping. The art of dismounting the bike at the right time took a lot of practice.

The next step to learn was how to get on the bike and get it moving. Again, we showed her one way first. Since she is right-handed, we taught her to position the right pedal up and slightly forward. She would then step on that pedal to start moving and get up on the seat. When she was comfortable with this method, she was ready to try another one. We showed her how you can stand on the lower pedal and push yourself along with the other foot, sort of like propelling a scooter forward, until you get up enough speed.

Our family is now able to go on bike rides together. Ingrid loves to ride and seems

very smooth and natural with it. We still need to monitor judgment calls, such as when to cross the busy street or when to give a pedestrian more room. But a stranger looking at us riding together wouldn't notice or think

twice about any of us. The effort to bring us to this point was an investment of time that was well worth the price. ☺

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