Current Diagnostic and Teaching Best Practices for Nonverbal Learning Disabilities

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Behavioral Objectives

- Identify key characteristics of the nonverbal learning disability (NVLD) neurocognitive profile
- List specific childhood medical conditions that place a child at risk for NVLD
- List key components for educational and psychosocial management across the lifespan for NVLD

Conflict of Interest Disclosure

- Kaplan Early Learning Company, Inc. – Markets Nemours BrightStart! educational tools and professional development (all related to reading readiness)
- Smart Horizons – Provides Nemours BrightStart! online professional development training (related to reading readiness)

What IS NVLD?

- Essentially the opposite of language-based LD
- Key deficits in visual-perceptual, visual-spatial, visual-motor, math, problem solving, and social skills for the complete “syndrome” (Rourke, 1995)
- Relative strengths in oral language, reading skills, and rote verbal memory
- Developmental course: worsening of symptoms

NVLD Is Controversial

- Lack of consistent, robust empirical research base
- Based mostly on clinical descriptions and clinical research (Johnson & Myklebust, 1967; Rourke, 1995)
- Core features overlap with ADHD and Autism Spectrum Disorder, especially Asperger’s
- Not included in DSM-V or IDEA

History of NVLD

- First described clinically by Johnson & Myklebust (1967)
  “. . . Experience itself . . . is distorted, not ability to use spoken language or to read and write. . . . Words have an ‘emptiness’ that belies superficial facility . . . The manifestations nonverbally are distortions of perception and of mental imagery.” (p. 273)
History of NVLD


“David”

- > 40 point split between Verbal and Performance IQ scores
- Severe visual-spatial deficit
- Severe math learning disability
- Verbal skills excellent

Childhood Medical Conditions and NVLD

- Cancers and chemotherapy treatment (E. Picard and B. Rourke, 1995)
- Early Hydrocephalus (J. Fletcher et al., 1995)
- Turner’s Syndrome (J. Rovet, 1995)
- Williams Syndrome (P. Anderson and B. Rourke, 1995)

Neuropathology with NVLD

- Deficient right hemisphere functioning
- Deficient right hemisphere access and connections
  - right – left (commissural)
  - Bottom – top (projection)
  - Front – back (association)

Left Hemisphere Brain Functioning

- Speech and language
- Reading and writing
- Verbal memory
- Fine detail, concordant, and routinized processing
- More gray matter than right hemisphere

Reading Circuitry

Anterior

Temporoparietal

Occipitotemporal
Right Hemisphere Functioning

- Visual – perceptual and visual – spatial processing
- Global, Gestalt, coarse processing
- Designed to process novel information and divergent thinking
- More white matter than left hemisphere

NVLD Characteristics in Young Children

- Motor delays and incoordination
- Emerging social awkwardness or reticence
- Strong rote verbal memory and vocabulary
- Often few striking deficits

What Would You See as Manifestations of NVLD in Preschool Children?

- Trouble skipping, hopping, riding bicycle
- Trouble sharing, requesting, conversing
- Articulation and/or speech prosody problems
- Poor at puzzles

NVLD Characteristics in Elementary School Children

- Increasing social awkwardness and social difficulty
- Marked handwriting, visual-perceptual, visual-spatial, and math disability
- Attentional and organizational problems
- Literal interpretation of language

What Would You See as Manifestations of NVLD in Elementary School Children?

- Difficulty with hand-writing and art
- Difficulty with multi-step math computation and word problems
- Difficulty with social skills
- Poor at team sports
NVLD Characteristics of Adolescents

- Continued problems in areas seen during elementary school
- Increased internalizing behavioral and emotional features, including anxiety and depression
- Targeted for bullying

What Would You See as Manifestations of NVLD in Adolescents?

- Poor social skills
- Difficulty with handwriting
- Difficulty with math
- Difficulty with abstract reasoning and problem solving
- Poor spatial orientation

NVLD Characteristics in Adulthood

- Continuance of deficits apparent in earlier years
- Difficulty gaining successful independent living
- Difficulty getting and keeping a job commensurate with academic achievement levels
- Difficulty with adult interpersonal relationships

What Would You See as Manifestations of NVLD in Adults?

- Poor social skills and adaptive capabilities for independent living (budgeting and planning)
- Difficulty getting and keeping a job
- Difficulty when job responsibilities change

Differential Diagnosis

- ADHD
- Asperger’s Disorder
- Other Learning Disabilities
- Co-morbidity

General Circumstances that Create Problems for Individuals with NVLD

- Highly social situations
- Highly stimulating situations and environments
- New situations that pose a problem
- Multi-tasking and prioritizing
- Low structure situations and environments
General Approach to Intervention and Accommodations

- Understand and recognize NVLD, and help the person with NVLD do the same
- Break visual-perceptual, visual-spatial, and visual-motor tasks into small steps and practice until easy
- Try verbal sequential cuing and verbal mediation to teach academic skills
- Explicitly teach social perception and social skills

Sample Graph to Explain

- Gender & pretest scores entered as covariates for all analyses
- ANCOVA results indicated that ethnic minority children improved at the same rate as their majority peers
- No significant differences found between groups in their response to intervention

Examples for Reading Comprehension and Written Expression

- Main idea
- Supporting details
- Cause-effect relationships
- Fact versus opinion
- Conclusions
- Making predictions
- Generalizing
- Symbolic language and figures of speech

General Approaches to Intervention and Accommodations

- Do not rely on “discovery” learning – this goes directly to the key deficit in NVLD
- Explicitly teach key academic skills and concepts, using multi-sensory and carefully sequenced steps with ample practice (e.g., reading comprehension skills, writing different types of essays, completing multi-step math computations, reading maps, charts, and graphs, etc.)

General Approach to Intervention and Accommodations

- Use keyboarding to write if handwriting is too difficult
- Provide organizational systems and checklists or cue cards
- Encourage independent adaptive skills from the earliest possible stage, starting with substantial supports that are gradually withdrawn
**General Approaches to Intervention and Accommodations**

- Use available technology – keyboarding, speech-to-text software; calculators; GPS
- Consider career assessments, counseling, and job coaching
- Be aware of risks for mental health problems (anxiety, depression) and encourage treatment

**Resources for Educators and Parents**

**Websites:**
- ncid.org
- ldonline.org
- smartkidswithld.org
- nidontheweb.org

**Books:**
- *The Source for Nonverbal Learning Disorders*, by Sue Thompson
- *Nonverbal Learning Disabilities at School*, by Pamela Tanguay

**References**