APRAXIA OF SPEECH
Motor planning disability
Sandra Goodman & Wendy Koen-Burnett

2 Apraxia
A neurogenic disorder of the association or conceptual programming level of motor function, occurring without paralysis of the muscles it affects, affecting planning and programming of volitional, sequential acts (W. Culbertson, 1999)

3 Apraxia of Speech
Disturbed motor planning directly due to impairment of motor association systems, manifested in disturbances in initiation, transitionalization, repertoire, and selection of articulatory gestures/movements. (Kent, 1976)

4 Associated terms
1. Aphemia (Broca, 1861)
2. Ataxic Aphasia (Kussmaul, 1877)
3. Subcortical Motor Aphasia (Wernicke, 1885)
4. Pure Motor Aphasia (Dejerine, 1901)
5. Anarthria (Marie, 1906)
6. Cortical Dysarthria (Bay, 1957)
7. Apraxia of Speech (Darley, 1968)
8. Verbal Apraxia
9. Little Broca’s Aphasia

5 Possible sites of lesion and Associated functions
6 Nonprimary motor cortex
Premotor areas: 6 & 44
1. Organization of motor output in relation to sensory information
2. Programming of complex movement sequences
3. Preparation for quick and accurate movement

Dyspraxia / Motor planning Disability
White matter underlying Broca’s area

• Region of afferent and efferent projections with Broca’s area

Parietal Cortical Lesion
Midparietal Lobe

• Complex motor sequencing

Insula

• Premotor association areas for oro-facial behaviors

Etiologies

• Vascular: left hemisphere strokes, multiple strokes (58%)
• Degenerative: unspecified CNS disease, Alzheimer’s, other (16%)
• Traumatic: neurosurgical (oops!), closed head trauma, (15%)
• Tumor: left hemisphere (6%)
• Other: undetermined or seizure disorder (5%)
• Multiple causes: (1%) Duffy, 1995

Differential Diagnosis

• Apraxia is not word finding difficulty
• Apraxia is not phonological disorder
• Apraxia is not syntactic disability
• Apraxia is not dementia
• Apraxia is not semantic disorder
  • BUT
• Apraxia can and often does coexist with these disorders and more.

Speech Symptoms
Dyspraxia / Motor planning Disability

- Effortful, trial and error, groping articulatory movements and attempts at self correction.
- Disprosody, abnormal rhythm, stress, and intonation.
- Articulatory inconsistency on repeated productions of the same utterance.
- Obvious difficulty initiating utterances
- Difficulty spontaneous & imitative speech

17  Multidisciplinary Team
   1  ● Medical Doctor
   ● Neurologist
   ● Physical Therapist
   ● Occupational Therapist
   ● Speech Language Pathologist

2  ● Psychologist
   ● Nursing Staff
   ● Patient
   ● Family Members
   ● Social Worker
   ● Vision Specialist

18  Attending Physician/Neurologist
   1  ● Management

   ● Primary diagnosis

   ● Referrals

19  ● Physical Therapist

   2  ● Occupational Therapist

   ● Addresses gait apraxia
   ● Hemiplegia in the lower extremities

   ● daily living skills
   ● Vocational skills
   ● Limb apraxia
   ● Upper extremity hemiplegia
   ● Adaptive equipment
Dyspraxia / Motor planning Disability

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- Vision Specialist

- Nursing staff

2

- Gaze apraxia
- Anopsia

- monitoring nutritional and medical status

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- Psychologist

- Social Worker

- Patient/family counseling
- mental health

- Access/Manage social programs
- Coordinate services
- Secure funding
Speech Language Pathologist

- Differential diagnosis
- Case Management
- Treatment plan

Therapy

- Monitor Progress
- Consult and advise with patient, family

Rehabilitative Treatment Strategies

- The ultimate goal of speech therapy is to restore the normal function of the motor speech mechanisms

Targeting and Phasing at the Segmental and Syllable Level

- Oral motor exercises
- Phonetic derivation
- Progressive approximation
- Phonetic placement
- Key word technique
- Imitation of phonetic contrasts

Remedial Treatments

Temporal Schemata of Speech and the Sequencing of Segments in Longer Utterances

- Melodic Intonation Therapy (Sparks, Helm and Albert, 1974; Sparks and Holland, 1976; Sparks, 1981; Naeser and Helm-Estabrooks, 1985)
- Vibrotactile Stimulation (Rubow, Rosenbek and Collins, 1982)
- Intra- and intersystemic facilitators
- PROMPTs (Chumpelik, 1984)

Remedial Treatment

- Methods for Treating Motor speech Perseveration
Remedial Therapy

- Volitional Control of Speech in Verbal Apraxia

*Cueing strategies

Accommodating Strategies

- Augmentation of verbal communication with speech aides: phoneme boards, pacing boards, communication books, gestural, signing, etc.
- The development of alternate modes of communication: augmentative devices or writing for total communication.

References