Supplemental Material S4. Additional case studies for practice application.

Below are case study descriptions for two additional children. A blank checklist template and flowchart are included in Supplemental Materials S1 and S2 to help guide determination of each child's diagnosis and goals that should be targeted in treatment. For comparison, diagnosis and treatment goals for each child are included below following the case study descriptions.

Child 5

Child 5 is a male who was 7 years old at the time of his evaluation. English is his primary language, and his mother also speaks to him in Russian. His birth history was remarkable for vacuum extraction and presence of meconium, but APGAR scores were 7 and 9 and no time was spent in the NICU. Family reported a history of feeding difficulties including poor latch, but he gained weight appropriately. A history of tongue and lip ties was also reported, and these ties were released when he was 2 years old. He passed a hearing screening and reported several ear infections during toddlerhood. Family reports the child also has diagnoses of developmental coordination disorder, sensory processing disorder, attention deficit hyperactivity disorder, receptive and expressive language disorder, reading disorder and low muscle tone. Parents report that they and his siblings understand 75% of the child's speech but peers and unfamiliar listeners understand less than 50%. Child communicates by pointing and using words and phrases.

During his evaluation, Child 5 demonstrated excessive loudness across all tasks and glottal fry in his retell of "Goodnight, Gorilla." Slow rate was demonstrated across all tasks as were imprecise articulatory contacts. Atypical stress, lexical stress errors, and syllable segregation were demonstrated across 2-3 tasks each as were consonant distortions, vowel errors, voicing errors, increased difficulty with multisyllabic words, and difficulty with transitionary movement gestures.

Child 6

Child 6 is a 4-year-old male with a history of absence seizures. Seizures were initially diagnosed at 12 months of age following a high fever. Parents report that their child has a diagnosis of Noonan's syndrome, which is associated with short stature, heart and skin issues, and developmental delays among other problems. Parents report a history of anemia, asthma, breath-holding spells, difficulty walking, sensory processing disorder, joint and muscle problems, drooling, heart problems, reading disorder, and vision impairments. Child is medicated with Gabapentin but continues to exhibit frequent seizures, which occur every 2–3 days. Child demonstrates severe cognitive and receptive and expressive language deficits. Parents report that they and Child 6's siblings understand 75% of his speech but peers and unfamiliar listeners understand less than 50%. He communicates through speech, signing and a communication board.

During his assessment, Child 6 passed a pure tone hearing screening. On the speech evaluation, he demonstrated low volume and atypical voice quality. Slow rate was observed on two tasks but not during the story retell of "Goodnight, Gorilla." Child 6 demonstrated reduced stress, imprecise articulatory contacts, consonant distortions, vowel errors, and voicing errors. Child 6 was not able to repeat the phrase, "Buy Bobby a puppy," during this evaluation and his intelligibility was rated as mild-moderate.

Diagnosis and Treatment Goals

Child 5

The combination of features exhibited by Child 5 suggests co-occurring CAS and dysarthria. As with Child 3, attention to the affected subsystems is important for informing treatment decisions. Child 5 demonstrated features of dysarthria across the subsystems, although based on the use of excess loudness and appropriate breath groups, he appeared to have adequate respiratory support for speech. The focus of treatment should be on increasing articulatory accuracy, including addressing imprecision that may be associated with dysarthria. An intense and frequent treatment protocol that incorporates principles of motor learning (e.g., ASSIST, DTTC) should be implemented. Prosody, an essential component of DTTC and ASSIST treatments, should also be addressed throughout the treatment process. If the prosodic deficits persist as the child gains articulatory accuracy, treatments such as ReST and TEMPO may be considered. Because this child has comorbid diagnoses of severe receptive and expressive language disorder and reading disorder, goals should also be written to address these challenges.

Child 6

Feature ratings suggest a dysarthria diagnosis. This child exhibited features of dysarthria across all 5 subsystems. Intervention for him would involve a subsystems approach (Pennington et al., 2010, 2013). Child 6's low verbal output and severity of his articulation and cognitive functioning make him a poor candidate for the Speech Intelligibility Treatment (Levy et al., 2021), although goals should address loudness and articulatory excursion. A portable amplifier may be facilitative for a child who has poor self-awareness and who may have difficulty monitoring his loudness. Child 6 may also benefit from support for augmentative/alternative modes of communication to support vocabulary development and facilitate interactions in educational, social, and family activities. Language skills should also be addressed.

References

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