Hannah

Hannah was admitted to the language unit at 4; 10 years, essentially non-verbal. She communicated only at a very basic level, using some gesture, vocalisation, 4 spoken words and a small number of signs. Her comprehension showed a moderate–severe delay. Hannah had a history of conductive hearing loss associated with glue ear, and a mild on-going unilateral loss. It was noted that she had made no progress in terms of speech over the previous 12 months, despite some speech and language therapy input.

Speech Assessment

Oro-motor skills

There was no history of feeding difficulties, although it was noted that Hannah struggled with chewy sweets, and there was some loss of liquid during drinking.

Muscle tone around her mouth and face appeared rather high, with limited mobility of lips and tongue. However, Hannah did manage a basic range of lip and tongue movements.

She was able to blow, but had great difficulty initiating voice and producing good vocal tone at a voluntary level.

Single Sounds

Her attempts at /p b m ɪ æ ʊ/ were reasonably consistent. It was also possible to elicit /n f h/ and approximations to the long vowels /i ɑ u/, with support.

Single words

Hannah attempted 4 words spontaneously:

/d̥ɛ/ - yes

/nʌ/ /nəʊ/ - no

/bˈj̥/ - me

/ʌləʊ/ - hello

Attempts at imitating other words, during assessment, were generally voiceless. Hannah managed some vowel differentiation, and some appropriate placement for consonants, but without airflow or voice.

Phonological Skills

Hannah was able to discriminate between minimally different words in her receptive vocabulary (e.g. tea/key, night/knife, nail/snail), showing that her input skills were at a significantly higher level than her output.

Diagnosis

Hannah was found to have a very severe oral and verbal dyspraxia, with a possible mild dysarthric element. She had particular difficulties with the motor programming/motor programs and motor execution levels of processing. Her respiratory/laryngeal system was particularly severely affected.

The extent of Hannah's dyspraxia became more apparent during therapy, when she found it extremely difficult to establish voluntary control over oral movements and combine these with airstream and voice to establish motor programs for sounds, or to modify existing programs.

Her need to be taught to use her sounds and CV syllables to attempt the words she wanted to say, and the increase in her expressive language once some basic speech skills were established, confirmed the severity of her motor programming difficulties.

Intervention

Hannah received 2 x 20 minute sessions daily, working specifically on her articulation and a group session on phonological skills, during her first 2 years at the Unit. During her third year, this was reduced to a single speech session. Her language skills were worked on separately, initially using signing to support her very limited verbal skills.

Treatment Programme

Hannah worked through the 4 stages of the NDP treatment plan (see Chapter 4) during her 3 years at the Unit.

Hannah worked on extending oro-motor control, (including control of airstream and voice), and establishing/improving motor programs for single sounds, throughout her treatment programme.

First year

Initially, work focused on establishing the basic lip/jaw postures required for vowels, front tongue/dental and back tongue/velar closure, and developing control of her airstream and voice (see Chapter 5: Therapy: oro-motor skills and Appendix 4 on eliciting sounds).

Hannah had great difficulty combining postures with airstream and voice at a voluntary level, to create speech sounds. She was therefore encouraged to switch on either voice or airstream and experiment with sounds, by moving her tongue around in her mouth. The sounds she produced were reinforced by being remodelled/cued/associated with symbol pictures, until they could eventually be elicited by cues.

Once established, motor programs for single sounds were consolidated by means of repetition, contrasting and sequencing activities. All targets incorporated work on developing control of airstream and voice (see Chapter 5: Therapy/oro-motor skills).

Voiced consonants /b d g m n w j/ were first combined with easier vowels to form CV syllables. Hannah was taught to use these to represent words in her signed vocabulary, thus increasing her communication skills and maximising practice of her speech skills. Modified articulatory targets for words were devised on the basis of normal developmental processes: pre-vocalic voicing, final consonant deletion and cluster reduction (e.g. /gɑ/ for car, /bəʊ/ for boat, /neɪ/ for snake). These targets were modified as motor programs for voiceless CVs were established. The first words, simple CV/CV words were also introduced (Mummy, Daddy, baby, Nanny).

Hannah worked on her oro-motor skills, and establishing a basic range of single sounds and CV syllables (Stage 1) for the first year. At the same time she worked on segmenting and blending CV words (see Chapter 6: Developing Literacy Skills).

Second year

During the second year she consolidated her range of CV words/syllables, improving the accuracy of lip/jaw/tongue postures for vowels, long/short vowel contrasts, airflow and placement for consonants. She also practised a wide range of CVC and CVCV words (stage 2), monitoring the accuracy of articulation and use of voice and airstream.

Licking and blowing activities continued to be used to lead into work on articulation, and sequencing activities were used to extend articulatory skills.

Work on tongue control also focused on developing central airflow for the sibilants /s z ʃ tʃ dʒ/, which were being produced as laterals and detracting significantly from the intelligibility of Hannah's speech. She also worked on discrimination of /s, ʃ/ from [ɬ].

Towards the end of the year easier multisyllabics and short phrases/sentences were introduced (Stage 3).

In phonology/phonics sessions, she mastered segmentation and blending of CVC words, and simple onset/rime tasks. She also worked on discrimination of vowels she was struggling to produce accurately (e.g. /i - ɪ/, /u - ɔ/), and on clarifying phonological representations and meanings of new words.

Third year

Hannah worked on improving the accuracy of vowels and consonants, and sustaining accurate articulation at sentence level. Work on tongue control continued to support work on tongue placements for the sibilants, and blowing to support work on increasing airflow for consonants and volume. Sequencing of single sounds and words continued to be used to develop accuracy with greater speed, without the additional demands of formulating language.

A wider range of multisyllabics and consonant clusters were tackled, and acceptable articulation of /r θ ð/ established at word level.

Work on voice continued, at sentence level, to increase her pitch range and use of phrasing and intonation. Work was done on the co-ordination of airflow and articulation at higher volumes, so that she could shout.

Sentence level work focused on junction strategies (see Chapter 5: Therapy Approach/connected speech), pacing and monitoring (Stage 4).

She worked on phonic skills in the classroom, learning a wide range of consonant and vowel digraphs (for example: ee, oy, th). Phonological representations and word meanings continued to be clarified as new words were introduced in speech sessions and in the classroom.

Outcome

By the end of the first year she was talking in short sentences, although the intelligibility of her speech was very poor. After almost 3 years, her phonology was more or less accurate, but her speech could still be unclear, as a result of continuing motor execution difficulties, i.e. poor vocal control (low pitch range/creaky), inadequate airflow for consonants and a somewhat limited range of tongue movement. However, she was generally able to make herself understood, by pacing and monitoring her speech.

Hannah's literacy skills progressed well to be within normal limits for her age. Her language skills are around the 11th centile, and general ability in the low average range. Hannah transferred to mainstream school at the end of the year, with support.