A LONGITUDINAL STUDY OF THE SPEECH ACQUISITION OF THREE SIBLINGS DIAGNOSED AS VERBALLY DYSPRAXIC

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ABSTRACT

Developmental Verbal Dyspraxia (DVD) is a term used to denote a disorder of planning oral movements, which is present developmentally. This paper introduces an in-depth longitudinal study of three siblings diagnosed as verbally dyspraxic. The study seeks to establish characteristics of the condition and to highlight differences and similarities between the children. The study supports the notion of DVD as a syndrome in which the central phonological problem is interlinked with other language deficits and a more generalised dyspraxia.

1. INTRODUCTION

Developmental Verbal Dyspraxia (DVD) is a term which occurs in the literature and is used in clinical diagnosis, in its own right. The condition is one in which children have moderate to severe articulation defects without any apparent organic cause. However, it is not clear whether DVD is a pure disorder of the sound system, or whether it is a broader syndrome. This author had the opportunity to make a longitudinal study of three children diagnosed as having severe verbal dyspraxic problems.

2. PROCEDURE

The study [4] was retrospective and made use of tape recordings and written notes collected over a ten year period, which covered stages from early babyhood until each child had reached a high degree of spoken competence. Recordings, which have been checked for accuracy of transcription, were made at intervals of approximately 4 to 6 months, and relate mainly to conversation with adults, particularly with the caregiver and with each child's speech therapist.

3. CHARACTERISTICS OF DVD

3.1 The Existence of a Syndrome

A clear definition of DVD is hard to find. The central problem is seen to be a disorder at the speech sound level and there appear to be some essential speech symptoms [2]. It has also been suggested that children with DVD demonstrate symptoms of a still wider disorder [3]. The main speech symptoms, as described in the literature, may be summarised as:

a) inconsistency in articulated production
b) difficulty in selection and sequencing of phonological and articulatory movements
c) increasing difficulty with increasing complexity of sequences
d) altered prosodic features, and
e) difference between voluntary and involuntary movements.

There may also be an accompanying:

f) expressive language disorder
g) learning disability, and
h) general motor problems.

These features are considered with relation to the children studied.

Each child displayed signs and symptoms characteristic of DVD, with phonological difficulties as the primary feature, see Table 1.

Table 1: Details of Children Studied

Sibling 1

Date of Birth:	31.3.77
I.Q.	119
Age of Diagnosis:	3 yrs
Severity of DVD:	Severe
Major difficulties:	Phonology
	Syntax
	Lexicon
	Clumsiness
	Arithmetic
	Auditory Memory

Sibling 2

Date of Birth:	14.1.81
I.Q.	131
Age of Diagnosis:	1 yr 10 m
Severity of DVD:	Severe
Major difficulties:	Phonology
	Syntax
	Lexicon
	Writing
	Spelling

Sibling 3

Date of Birth:	22.3.83
I.Q.	113
Age of Diagnosis:	3 yrs 5 m
Severity of DVD:	Mild
Major difficulties:	Phonology
	Syntax
	Lexicon
	Clumsiness
	Abstract Concepts

3.2 Inconsistency in Articulated Production

The children's articulated productions could be characterised as very variable, sometimes following an adult pattern, at other times varying even within a single lexical item. Their earliest productions showed the greatest variation, and over a period of time, favoured versions could be identified. Variability was a feature of both vowel and consonant usage.

3.3 Difficulty in Selection and Sequencing

Vowels are rarely in error in most children, but were very noticeable in these children's speech, although the difficulty did not lie in an inability to produce the required vowels, and early words include examples of both correct and incorrect production.

Most of the children's early words were monosyllables and many of these were open vowels. Normally developing infants use open vowels in less than 5% of their words [1], whereas in these children they accounted for up to one third of their early words.

Errors in consonant selection and some infrequent sequencing errors, accompanied vowel errors. Several normal phonological processes were identified in the children's speech, notably syllable deletion, final consonant deletion and cluster reduction, which they used, extensively until later than normal, possibly due to their articulatory difficulties. There is also

evidence of the use of some idiosyncratic processes, these are error patterns, not documented, or infrequent, in normal children, and of some chronological mismatch, where processes used in normal development co-occur with some correct production of sounds usually acquired late.

3.4 Increasing Difficulty with Increasing Complexity

Polysyllabic words created particular problems, with great difficulty occurring in the production of words of more than two syllables. Sometimes such words were shortened, in almost all cases sounds were rearranged and substitutions made. They were unable to repeat polysyllabic words even when broken down into their constituent parts. These difficulties were slow to resolve and a continuing difficulty with polysyllabic words was still evident at the end of the study.

3.5 Altered Prosodic Features

The three children's early vocalisations varied from the norm. Their vocalisations were not wide ranging, although their use of reflexive vocalisations, crying and laughing, were normal. They were quiet babies who failed to babble freely, and whose productions were limited in both character and length. A pattern of reduplicated CV syllables in babbling was present but far from striking. Most of their utterances were single syllables and lacked flow. Their early vocalisations appeared not to be progressively shaped by the auditory pattern of the adult speech around them and screaming and crying increasingly became part of their utterances.

The quality of their production continued to be somewhat unpredictable, Rhythm was restricted by the use of monosyllables and temporal delay. They used flat intonation which did not improve with increases in their phonetic inventories and the length of their utterances. The use of a deep voice, the introduction of intrusive sounds, and a preference for sounds produced at the back of the mouth, made their speech appear tense and effortful. The children all appeared to need to apply great thought and planning to their utterances.

3.5 Differences between Voluntary and Involuntary Movements

It is not clear that basic involuntary movements were entirely without difficulty, but these were much easier for them than similar actions performed on imitation or as part of speech. Tongue control exercises, for example, were more difficult, and imitation of tongue movements was only possible voluntarily after several months of speech therapy.

3.6 Expressive Language Disorder

All three children's early expressive language lagged significantly behind their comprehension. Even when their language reached an age-appropriate level, it contained widespread errors, both normal and deviant in nature. It showed a mismatch of development, containing features from a variety of stages, and also demonstrated considerable limitation in vocabulary. Particular difficulty was found in the use:

a) Pronouns
b) Verb tenses
c) Prepositions
d) Question forms and negative structures

4. Discussion

The study of these three children indicates that there exist related areas of difficulty which go beyond those which could be caused by a pure motor programming deficit. Whilst it is not possible to state that DVD cannot exist as a pure disorder of the sound system, in these children it was not confined in this way. The evidence tends to support the argument that DVD is not a pure phonological disorder, but rather that DVD is a syndrome complex, in which a severe and persistent phonological disorder is linked with other characteristics. The characteristics evidenced vary across the children, both in type and degree, but when grouped together they support a cluster of symptoms which appear also in the literature and which seem collectively to create a distinct syndrome of DVD.

Many children with DVD are not diagnosed until their speech patterns are relatively fixed, making remediation more difficult. Based on this study, it is possible that early predictors of difficulties in speech development can be found. Characteristics that may indicate that a young child's speech should be monitored include restricted early babbling, limited vocal response to stimulation, vowel errors and the common use of open vowels, variability of production and vocabulary limitations.

The children's general development lends support to the existence of DVD not as an isolated and exclusive condition, but rather as one type of developmental dyspraxia in which phonological difficulties are the primary feature, interlinked with the existence of other language deficits, particularly of syntax and spelling, and accompanied by mild clumsiness and poor fine co-ordination in other areas, although these may be varied in type and degree.

5. References

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