

Linguistic interaction: the active role of parents in speech therapy for cleft palate patients

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Abstract

As speech and language intervention becomes more naturalistic, it seems obvious that language and other developmental competencies are, in a strong way, a function of the quality and quantity of relationships in which the child evolves. This paper compares two different speech therapy groups of cleft palate children. Children included in the first group received therapy alone with the speech pathologist, whereas children from the second group received speech therapy accompanied by their mothers. The purpose was to evaluate and provide the mothers with interaction modes for facilitating communication. Both groups were evaluated before and after the therapy period in order to measure the advance of each group. The patients accompanied by their mothers showed a significantly higher linguistic advance as compared to patients receiving therapy without their mothers. The results in this study support the statement that linguistic development in the cleft palate child is strongly related to adult-child mode of interaction.

Keywords: Cleft palate; Speech therapy; Linguistic interaction

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1. Introduction

During several years, the treatment of cleft palate children was especially focused on the specific skills and deficits present in each child during speech.

Several studies have described that language acquisition begins before the child produces its first words, when mother and child create predictive routines and structures for communicating themselves [2]. Hence, language and speech development is, in a strong way, dependent of the quantity and quality of the relationships in which the child evolves [4,6,18].

Several clinicians have extended Piaget's constructivism to a social context, where the focus of interest has been how is it that children learn to be social and communicative. These authors propose that children become communicative to the degree to which they can act upon and negotiate with their significant adults and peers. Therefore, for children to achieve appropriate communication, it is necessary that they live with someone with the mode of interaction capable of encouraging them to naturally learn how to communicate and adopt the adult social model [2,9–11,18].

The purpose of this paper is to study whether the active participation of parents during speech therapy sessions may enhance linguistic performance of cleft palate children.

2. Materials and methods

All cleft palate patients at the Cleft Palate Clinic of the Hospital Gea González in Mexico City from January 1993 to December 1993 were evaluated. Children who met the following criteria were included in the study group:

- (1) Total, unilateral cleft of primary and secondary palate (UCLP) [7]. These patients were non-syndromic and their UCLP was not associated with any congenital anomalies, thus ruling out extraneous factors which could influence speech and language development and learning. In other words, the patients had to be normal in all respects other than the UCLP.
- (2) Cleft palate width had to be grades I or II [3].
- (3) Surgical repair of the UCLP had to be performed according to the surgical routine of the Cleft Palate Clinic as reported previously [19]. This routine includes: surgical repair of the lip and primary palate between 1–3 months, and surgical repair of the secondary palate between 12–18 months with a push-back palatoplasty [20] and simultaneous posterior pillars pharyngoplasty [15].
- (4) Only patients without velopharyngeal insufficiency after surgical correction of the UCLP as demonstrated by clinical assessment, video nasopharyngoscopy and multi-view videofluoroscopy were included in the study group [5,16,19].
- (5) The patients with post-operative fistulae were excluded from the study group.
- (6) Children should be 3–5 years of age at the time they were selected for the study.
- (7) Normal hearing had to be demonstrated by conventional pure-tone audiometry.

- (8) Language development had to be below normal limits as demonstrated by a battery of age-appropriate standardized language tests (BELE) [14]. Only patients with BELE linguistic development scales between 5 and 7 were included in the study groups. These scales are considered as moderate linguistic performance deficit [14]. The purpose of this criterion was to include only patients who were equivalent on the basis of a baseline measure.
- (9) Children with neurological deficits other than speech and language disorders were also excluded.

The children were randomly divided into two groups. The first group received therapy according to whole language [13] in which every day significant events for the child were recreated and utilized for therapy sessions [12]. In order to enhance interaction and socialization, small groups of three members were assembled, including a speech pathologist, and two children with similar age, level of play [21] and linguistic performance [14].

Children included in the second group received speech therapy according to whole language and using the same events mentioned herein only that these children received therapy accompanied by their mothers. Hence, the therapy groups assembled with these children included five members: one speech pathologist, two children with similar age, level of play, linguistic performance and their mothers. The purpose of the presence of the mother was to evaluate and modify, if necessary, the adult-child mode of interaction. With this purpose, a videotape recording of mother-child during a free play situation was obtained in order to evaluate the adult-child mode of interaction in each case. Adult-child mode of interaction was classified according to Lund and Duchan [8]. These authors consider two main aspects of mother's utterances: semantic contingency and mode of interaction.

2.1. Semantic contingency

Maternal utterances were considered contingent when they were related with the focus of interest of the child, in other words, they were considered contingent when they were related to the child's utterances and actions previous to maternal utterances.

Non-contingent interaction:

Juan: (playing with his toy cars)

Mom: 'Ven, vamos a jugar con la pelota' (Come, let's play with the ball)

Juan: 'coche mío' (car mine) (shows to mother)

Mom: 'pon tus manos para que la caches' (put your hands ready to catch it)

Juan: (turns to see mom and takes the toy car again)

Mom: 'Anda, juega conmigo, ahí va' (Come, play with me, here it comes)

Mother dominates interaction and pays no attention to the focus of interest of Juan (the toy car). In each emission, the focus of the child is deviated.

Contingent interaction:

Juan: (playing with his toy cars)

Mom: 'uuuu cuantos coches' (uuuu so many cars)

Juan: 'coche mío' (car mine)

Mom: (toma un coche) yo juego con éste (—takes one car — I will play with this one)

Juan: 'ete mío' (t-is mine)

Mom: (avienta el coche) ahí vá, pum, chocó (—pushes the car — here it goes, pum, crashed)

Juan: (avienta otro) pum oco (—pushes another car—pum c-ashed)

Mother is now following Juan's interests and invites him to participate in a simple routine (push-crash car). Mother gives utterances which are appropriate for child's interests and level of play, this behavior offers Juan more opportunities for learning how to communicate.

As far as mother's mode of interaction, the attention is focused on two variants: directive mode of interaction, and nurturant mode of interaction.

Directive mode includes:

- (a) imperative abuse
- (b) requests of child's attention
- (c) interaction asymmetry (higher number of utterances by the adult)
- (d) lack of contingency
- (e) use of test questions

Nurturant mode includes:

- (a) use of comments and expressions
- (b) use of real questions
- (c) respecting child's timing. To watch and wait giving time and hints for interaction
- (d) provide appropriate information according to the child's level of play

Directive mode:

Susi: (takes an apple)

Dad: '¿que es eso?' (what is that?)

Susi: 'am am' (takes it to her mouth)

Dad: 'Susi, ¿como se llama? (Susi, how is it called?)

Susi: (keeps eating)

Dad: 'manzana, dime tú' (apple, you say)

Father pays no attention to Susi's attempt at communication and makes test questions repetitively. Father's requests may cause frustration feelings in her daughter since she is not in shape to achieve his expectations.

Nurturant mode:

Susi: (takes an apple)

Dad: 'mm una manzana' (mm an apple)

Susi: 'am am ana/manzana/' (am am/ple/apple/)

Dad: 'mj, come manzana' (mh, eat apple)

Susi: 'papá ana/manzana/' (dad,ple/apple)

This time father makes no requests, instead he uses Susi's utterances and expands (gives extra information) according to the girl's linguistic and cognitive levels. The adult progressively matches the child by showing a next step and allowing the child to do her part.

Both groups of children were followed for 8 months in order to evaluate linguistic advance. The mode of interaction of the mothers before and after the follow-up period was determined in the group of children receiving therapy with their mother. Linguistic performance, according to the categories described by Bloom and Lahey [1] was determined in both groups of patients before and after the speech-therapy period.

Stages of linguistic performance:

Prelinguistic: Level 1 (PL)

Single word: Level 2 (SWL)

First word combinations: Level 3 (PS)

Simple sentences: Level 4 (SSL)

Complex sentences: Level 5 (CSL)

Moreover, level of play [21] was also determined in both groups of patients before and after the speech therapy period.

Level of play:

Relational/social level of play 1 (RS)

Symbolic/parallel level of play 2 (SP)

Imaginative/co-operative level of play 3 (IC)

Linguistic performance was measured as follows: the cases in which the same linguistic level persisted during the follow-up period or advanced only a single level were considered as poor advance, whereas the cases in which linguistic level advanced two or three levels were considered as adequate advance.

By the same token, level of play was also measured. The cases in which level of play remained unchanged during the follow-up period were considered as poor advance, whereas the cases in which level of play advanced two or three categories were considered as adequate advance.

All the cases were evaluated by two separate speech pathologists. Linguistic performance and level of play were classified in each case before and after the follow-up period and a concordance value was obtained.

The speech pathologist providing therapy was the same for all patients from both groups (M. Pamplona). It is necessary to point out that even though the parents from the first group were not involved in the therapy sessions they received indications about linguistic stimulation at home. These indications are provided routinely in our center to all parents. Thus, the only difference between patients from the first group and patients from the second group was that parents from the second group were directly involved in the therapy sessions. All parents from both groups received information about linguistic stimulation at home, the therapist was the same in all cases, therapy techniques were similar in all therapy sessions, and finally therapy was provided similarly, One hour 3 times a week for a total length of 8 months in all cases from both groups.

3. Results

Three-hundred-and-fifty cleft palate cases were revised.

A total of 21 patients met the inclusion criteria and were included in the study group. Patients were randomly divided into 2 groups, the first group included 10 patients and the second group included 11 patients.

Age ranged from 3 years to 4 years and 8 months. Mean age in group 1 was 3 years and 9 months, and mean age in group 2 was 3 years and 7 months.

Both examiners coincided in both linguistic level and level of play evaluations in 95% of the cases at the onset of therapy, and in 94% of the cases at the end of the therapy period. Whenever there was a difference, each case was discussed by both examiners until a conclusion was reached.

Table 1 shows age, linguistic level at the onset of therapy, linguistic level at the end of the therapy period and the number of levels advanced after the therapy period in the patients from group 1 (without parent's active participation during therapy).

In Table 2, age, linguistic level at the onset of therapy, linguistic level at the end of the therapy period and the number of linguistic levels advanced after therapy in the patients from group 2 are shown (with parent's active participation during therapy).

Furthermore, all patients included in the study groups showed similar deficits in the BELE linguistic development scales [14]. In other words, before the onset of speech therapy all patients from both groups were equivalent on the basis of a baseline measure.

It should be pointed out that all the patients from both groups (group 1 and group 2) showed linguistic performance below normal limits for their age [1,14] before the therapy period was initiated (see Tables 1 and 2).

Table 1
Age and linguistic stages pre- and post-therapy (group 1, without parents)

Patient number	Age at the onset	Linguistic level at the onset	Linguistic level at the end	Levels advanced
1	4	1	3	2
2	3;6	2	4	2
3	4;3	2	4	2
4	3;3	2	3	1
5	4;1	3	4	1
6	3;1	1	2	1
7	3;5	2	4	2
8	3	3	4	1
9	4;5	2	3	1
10	4;3	2	3	1
X	3;9			

Linguistic levels: 1, pre-linguistic; 2, single word; 3, first word combinations; 4, simple sentences; 5, complex sentences.

Table 2
Age and linguistic stages pre- and post-therapy (group 2, with parents)

Patient number	Age at the onset	Linguistic level at the onset	Linguistic level at the end	Levels advanced
1	3	3	4	1
2	4;8	2	3	1
3	4;4	1	3	2
4	3;1	3	5	2
5	3;1	1	4	3
6	3;6	2	4	2
7	3;7	2	5	3
8	4;2	2	5	3
9	3;3	1	3	2
10	3;7	2	4	2
11	3;5	3	5	2
X	3;7			

Linguistic levels; 1, pre-linguistic; 2, single word; 3, first word combinations; 4, simple sentences; 5, complex sentences.

Table 3 shows level of play at the beginning of the speech therapy period, level of play at the end of the speech therapy period and the number of levels advanced in the patients from group 1.

In Table 4, level of play at the beginning of the speech therapy, level of play at the end of the speech therapy period and the number of levels advanced after the speech therapy in patients from group 2 are shown. Also, whether there was a modification or not in the mother's mode of interaction in each case was included in Table 4.

A Fisher exact test demonstrated that level of play after speech therapy was not significantly different in patients from both groups ($P > 0.05$, see Tables 5 and 6).

Table 3
Levels of play and advances (group 1, without parents)

Patient number	Level of play at the onset	Level of play at the end	Levels advanced
1	2	2	0
2	2	3	1
3	2	3	1
4	1	2	1
5	2	3	1
6	1	2	1
7	2	3	1
8	1	2	1
9	2	3	1
10	2	2	0

Levels of play: 1, relational; 2, symbolic; 3, imaginative.

Table 4
Levels of play, advances and interaction style (group 2, with parents)

Patient number	Level of play at the onset	Level of play at the end	Levels advanced	Interaction modification Yes–no
1	2	3	2	No
2	1	2	1	No
3	1	2	1	No
4	2	3	1	Yes
5	1	2	1	Yes
6	1	2	1	Yes
7	2	2	0	Yes
8	2	3	1	No*
9	2	2	0	Yes
10	1	2	1	Yes
11	2	2	0	Yes
				63% Modified

Levels of play: 1, relational; 2, symbolic; 3, imaginative.

*The style of interaction of this mother was nurturant at the onset of speech therapy.

Table 5
Levels of play advance in both groups

Advance	Group 1 (no parents)	Group 2 (with parents)
0 Level	2	3
1 Level	8	7
2 Level	0	1
3 Level	0	0
Total	10	11

Table 6
Levels of play advance in both groups

Advance	Group 1 (no parents)	Group 2 (with parents)
Poor advance (0–1 levels)	10	9
Adequate advance (2–3 levels)	0	2

$P > 0.05$.

Tables 7 and 8 shows linguistic advance in both groups of patients. A Fisher exact test demonstrated that linguistic advance was significantly higher in the patients receiving therapy with their mothers ($P < 0.05$, see Table 5).

Table 7
Linguistic levels advance in both groups

Advance	Group 1 (no parents)	Group 2 (with parents)
0 Level	0	0
1 Level	6	2
2 Level	4	6
3 Level	0	3
Total	10	11

4. Discussion

Whole language intervention uses the principles of natural language learning which considers language not as an independent system but a system intimately related to other cognitive and representation abilities. Hence, communication is influenced by several non-linguistic variables such as motivation, previous experience, learning and anxiety [13].

On the other hand, therapy for cleft palate children should stimulate not only the child, but its family and social environments including relationships and contexts of play which provide a natural support for communication and speech learning.

In this study, cleft palate children receiving therapy with their mothers showed a significantly greater linguistic advance as compared to cleft palate children receiving therapy without their mothers. These results supports the statement that child development in several aspects (cognitive, sensory-motor, social, emotional and communicative) is profoundly influenced by the adult-child mode of interaction [9].

It should be pointed out that only one of the mothers from patients from group 2 was considered to have a nurturant mode of interaction with the child at the beginning of the therapy period. Moreover, after the therapy period, eight mothers had modified their mode of interaction from directive mode into nurturant mode. It is particularly interesting that the only two children from group 2 with poor

Table 8
Linguistic levels advance in both groups

Advance	Group 1 (no parents)	Group 2 (with parents)
Poor advance (0–1 levels)	6 (60%)	2 (18%)
Adequate advance (2–3 Levels)	4 (40%)	9 (82%)
Total	10	11

$P < 0.05$.

linguistic advance corresponded to the mothers that still had a directive mode after the therapy period.

It may be the case that the differences found between the two groups of patients were related to the number of adult models (speech pathologist and mother) provided and not necessarily the inclusion of the child's parent. In any case, the participation of the parent enhanced child's performance during the therapy sessions. Furthermore, the total time of participation of the adult models was significantly shorter as compared to the participation time of parents at home once their mode of interaction has been modified. This modification may appear as a result of the participation of the parent during therapy sessions and it is not likely to emerge only as a consequence of the information about linguistic stimulation which was provided in all cases.

Both groups of patients had similar levels of play after the therapy period. A possible explanation is that all the patients were treated similarly according to whole language in which every-day representations through play were used. The only difference between the two groups of patients was that patients from group 2 received speech therapy with their mothers whereas patients from group 1 received therapy without their mothers.

Another factor is that the groups of patients studied herein were kept as homogeneous as possible [17], cleft type, cleft width, language development, hearing level, surgical repair, velopharyngeal function (absence of velopharyngeal insufficiency) and absence of fistulae were similar in all the patients included in the study groups.

As mentioned herein all the patients included in the study groups showed absence of VPI after surgery and absence of neurological deficits. However, all the cases showed linguistic performance below normal limits for their age (see Tables 1 and 2). It is well established that a child's development in several domains is profoundly influenced by the adult-child mode of interaction. Language and other developmental competencies are, in a strong way, a function of the quality and quantity of relationships in which the child evolves [4,6,9,10,18].

Thus, therapy for cleft palate patients should include the active participation of the parents as well as providing strategies for changing habits that affect child development negatively.

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