AUGMENTATIVE AND ALTERNATIVE COMMUNICATION REPERCUSSION ON NON-FLUENT APHASIA

Repercussão da comunicação suplementar e/ou alternativa na afasia não fluente

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ABSTRACT

Purpose: verify the communication forms and linguistic-cognitive performance of aphasics from an Augmentative and Alternative Communication (AAC) perspective and to evaluate their perception. **Methods:** this is a longitudinal research with qualitative approach, approved by the Ethic and Research Committee. The sample includes 5 non-fluent subjects with aphasia. Data was collected analyzing the subjects' files, video records of speech and language therapy focused on AAC, and the subjects opinions about it. **Results:** subjects used several ways of communication to express themselves as well as increased their use of AAC. In doing so, they demanded less gestures support during the study, which facilitated their communication and diminished guessing and frustrated conversation attempts. The use of AAC resulted in the increase of oral production. Subjects referred that they enjoyed using AAC and that it contributed to their communication in some way. **Conclusion:** results showed that AAC support contributed to subjects so they could assume their position as speakers, overcoming their language difficulties. Therefore it has facilitated them to assume themselves as linguistic and social subjects. Dialogic and contextualized activities, as well as the interlocutor mediation, facilitated the process of (re)signification of their enunciations. Therefore, regarding this context, AAC is an important support that mediates and facilitates the linguistic process on non-fluent aphasias with repercussions on oral production.

KEYWORDS: Aphasia; Communication Aids for Disabled; Language; Speech, Language and Hearing Sciences

INTRODUCTION

The Chronic Noncommunicable Diseases (NCDs) are the worldwide leading cause of death, accounting for 63% of the 57 million deaths in 2008, according to the World Health Organization – WHO[1]. Regarding the deaths caused by NCDs, cardiovascular diseases account for 48%, followed by cancer (21%) and chronic respiratory diseases (12%)[1]. Furthermore, over 9 million of those deaths are related to individuals under 60 years and could have been prevented[1].

Over the last few decades, the NCDs have also become the leading cause of death in Brazil[2]. They are responsible for 74% of deaths, having cardiovascular diseases alone accounting for 33% of this total[1]. Among the cardiovascular diseases, stroke is currently the second leading cause of death worldwide and the first in Brazil[3-5], representing, thus, a serious public health issue[6]. It is also considered the leading cause of physical disability in adulthood[7]. Dependence and inability to perform daily tasks occur due to several sequelae resulting from stroke, which could be physical, functional, emotional and/or communicative. The sequela severity depends on the type, location and extent of the injury.

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Language disorders account for the greatest functional impairment among all the possible sequelae following a stroke[8]. Moreover, stroke is responsible for 58% of language disorders, and patients who have had stroke may develop serious linguistic and cognitive disorders[8]. It is estimated that 40% of patients with acute stroke have aphasia. Half of those patients still present language disorders during the chronic phase[11], which requires intervention and rehabilitation.

This study focus on aphasia, a language disorder related to comprehension and/or expression and similar language processes. Specifically, we address the aphasia impacts on various aspects of subjects' life. Aphasia not only affects language, but also interferes with its related processes, such as practical life and social and affective relationships[9]. Moreover, it can also impact interactive and interpretive relations[9,10].

We focus on non-fluent aphasia, one of the aphasia categories. Non-fluent aphasia patients present fragmented phrases with paraphasias, prolongation of sounds, difficulties in deployment and coordination and execution of phono-articulatory movements[12]. For this reason, it is important to acknowledge the linguistic constructions of the aphasics speech, as well as the social context, the interaction and how they use language[10,12,13]. Therefore, during the (speech and language) therapeutic follow-up of aphasia, it is important to examine the conditions of oral and non-oral discourse production, taking into account dialogues and narratives in a dialogical and contextual perspective beyond an understanding of the social individual participating in the (re) constitution of his language.

According to some authors[14], aphasics often do not improve their condition as a result of clinical follow-up and these efforts may be insufficient for language evolution. In those cases, the Augmentative and Alternative Communication (AAC) is as a therapeutic possibility[13,15 – 17].

AAC is a tool for language mediation, which favors language itself, the (re) constitution of subjects with language disorders, and quality of their interaction[13]. It can be understood as a clinical and educational approach that *aims to support, complement, supplement/augment, or replace the production and verbal interpretation forms of non-speaking subjects or of subjects with extreme language difficulties*[13]. Some authors[15,18,19] explain that AAC can assist individuals with language impairments, such as aphasia, to express their messages and needs (written or spoken) in a more efficient way. Consequently, AAC favors autonomy, linguistic competency, and social interactions.

Given the above, it is interesting to investigate the impact of the use of AAC in assisting the language processes of non-fluent aphasic subjects. The overall objectives are to verify the communication forms and the linguistic-cognitive performance of the subjects in a speech and language therapy implementing AAC, and to evaluate their perception regarding the resources of AAC. The specific objectives are: a) to acknowledge the communication forms used before and after implementation of AAC; to analyze the linguistic and cognitive performance on the aspects of oral and written production, use of gestures, understanding and use of AAC resources, and need for help and mediation after the implementation of AAC; and c) evaluate the subjects' perception of communication and AAC use.

METHODS

This is a qualitative, longitudinal research. Its corpus is composed of 5 non-fluent aphasics from the Group II of the Aphasia Center (CCA – IEL / UNICAMP), who participated in the AAC speech and language therapy. The subjects (or their legal guardian) agreed to participate by signing a Free and Clarified Consent Term. This study was approved by the UNICAMP Ethics in Research Committee.

The subjects were selected based on their oral language impairment and their interest in using AAC.

Data were gathered from three sources:

a) institutional records, to characterize the subjects based on their aphasia history, cognitive-linguistic conditions, and use of AAC resources;

b) video recordings of the AAC speech and language therapy, to analyze language aspects of the subject after using AAC, taking into account the use of communication forms – oral and written language, own gestures, facial expressions, AAC resources, and need for assistance and mediation. The videos were recorded during a period of 27 month (03/2007 to 06/2009), accounting for 50 meetings. Of these meeting, we selected 19 for transcription, according to the research objectives;

c) subjects' reports about communication and AAC use. For this purpose, we used a communication board with Pictographic Communication System (PCS) symbols.

The speech and language therapy occurred in 60-minute weekly meetings, conducted by the researchers and volunteers (undergraduate students from the Speech and Language Graduation Course at UNICAMP). We elaborated communication boards for each subject, including PCS symbols. The PCS was used because its symbols are easily recognizable and have a Portuguese version, and

also because this system is the most commonly used in Brazil.

Additionally, we conducted contextualized activities from a discursive perspective, in order to attribute meaning to the production forms of the subjects. In these activities, we sought to value the facts and situations brought by the participants, such as their personal life story, news, songs, poems, recipes, games, and other activities of interest for the group[13]. During these activities, we offered PCS symbols related to the themes of the meeting.

The transcription of the selected episodes follows the Neurolinguistic Database coding system[20]. Data are presented according to the row number, speaker's identification, orthographic transcription, observation on the verbal meaning processes, observation on the nonverbal meaning processes, and an additional column with observations on the AAC meaning processes. It is also relevant to mention that, since all therapy was conducted in Portuguese, in this paper we present a free translation adapted from the original transcriptions. In Figure 1 we show the transcription markings:

Marking	Description
:	Prolongation of sounds
/	Brief pause
//	Long pause
-	Syllabification
[	Superposition of voices

Figure 1 – Transcription markings

The subjects' reports were guided by the following questions:

1) How do you talk to people about what you want?

2) Do you think the communication board and the symbols can help you to communicate with others?

3) What activities do you like to perform with help of the communication board and the symbols?

RESULTS

The results are presented in three parts: characterization of subjects, impact of AAC on language, and reports about their use of AAC as a communication tool.

Brief characterization of the subjects and the use of AAC

Subject 1 (S1)

59 years old, male, divorced, construction worker. He had four stroke episodes in a period of four years, presenting right hemiplegia and global aphasia. The subject has limited oral communication and verbal and gestural stereotypies during speech, such as "opa", and a circle gesture with his hands. According to his sister and caregiver, S1 does not participate in family celebrations and other events requiring exposition. He joined the AAC speech and language therapy group in 05/2006, being active and showing interested in working with AAC, especially in activities related to recalling his life story.

Subject 2 (S2)

37 years old, female, single, maid. She had two stroke episodes in a period of two and a half years, presenting the following sequelae: afferent motor aphasia, right hemiparesis, oral apraxia, and emotional lability. The subject shows reduced verbal expression and comprehension problems. According to her brother, S2 does not like attending public places and has bouts of crying and laughter. Quickly adopted AAC as a communication form, not showing difficulties in understanding the activities presented to the group. She was the latest participant to join the group, in 06/2007.

Subject 3 (S3)

50 years old, female, single, occupational therapist. She had a rupture of a cerebral aneurysm over 20 years ago, affecting the left middle cerebral artery. As sequelae, she presented efferent motor aphasia, dysarthria, and right hemiparesis. She has difficult speech sequencing and verbal stereotypies, such as "preciso falar" (I need to speak), "issau", "ai senhor" (Oh, God) and "ótimo" (great). The subject benefits from oral and visual promptings in dialogical situations, has good comprehension and uses several means to be understood. Moreover, she likes to sing and has preserved the melodic structures of songs. She began working with the AAC in 05/2006, being very collaborative and participatory in the activities, and assisting the other participants on their difficulties.

Subject 4 (S4)

59 years old, female, married, housewife. She had a stroke in 2000, which caused efferent motor aphasia with traces of dynamic aphasia and predominantly brachial right hemiparesis. The

subject shows lack of verbal initiative, requiring the other to start a dialogue and encourage interaction. She uses hand gestures and head to convey the desired message and asks her husband for help in order to make herself understood. She joined the AAC group in 05/2006 and demonstrated that she understood the proposed use for AAC, using it in her activities with no significant difficulties.

Subject 5 (S5)

67 years old, female, married, retired teacher. She had an episode of hemorrhagic stroke triggered by a hypertension crisis in 1996, causing afferent motor aphasia, oral apraxia, and dysarthria. The subject presents fragmented phrases with anomie, paraphasias and prolongation of sounds with facial, neck and body syncinesis. Furthermore, she shows great effort when speaking, accompanied by neck tension and pitched voice. The subject makes use of written communication. She started using AAC in 05/2006 and showed no difficulties in understanding and using the resources. With AAC, she built more elaborate statements, often not requiring the mediation of researchers.

Impact of AAC on language

The data extracted from the video recordings show that subjects make use of various communication forms to express the intended content, such as the use of PCS symbols, own gestures, facial expression, speech production, albeit restricted for S1 and S2, and writing, in the case of S5.

We found along the study, through the analysis of data, that the subjects made greater use of AAC and required less assistance from own gestures. Moreover, AAC facilitated communication and interaction with each other, and reduced guesswork and failed attempts to talk. Regarding the cases of S2, S3 and S5, the subjects were able to use easily the AAC resources, and, in several occasions, they could use those resources for achieving a more spontaneous communication.

S2, S3 and S4 took advantage of a visual and verbal prompting to access the desired word, since they had great difficulty in lexical access. S5 showed an adequate and more elaborate production, making use of pictures and writing to get to the spoken word.

We observed that the greater use of AAC reflected in increasing subjects' oral production. In the case of S1, we could not notice a significant increase in oral production. However, his few speeches were very important for him due to his physical and health condition after four lesional episodes. Moreover, we observed that S1 did not show the verbal and gestural stereotypies described in previous therapeutical reports. Regarding S2, we observed increased oral production for words, which demonstrates improvement. S3 was able to produce a few simple spoken sentences with the aid of pictures and words from the AAC symbols. There were fewer verbal stereotypies which, despite the intonation and the interlocutor's comprehension of the speaker's intention, most often undermine the speech. S4 produced more words over time, especially with the support of the visual and verbal AAC prompting and the verbal support from the interlocutor. For S5, the use of symbols combined with oral production increased over time, since the subject uses both resources at the concurrently. She also presented greater production of oral sentences.

The subjects demonstrated to understand the proposals in therapeutic activities. S3 and S5 did not need help to perform the activities, whereas S1, S2 and S4 needed the help of others in their development. In general, the subjects kept their attention on group activities, respected the discursive topics and maintained them in dialogue. Additionally, the subjects S3 and S5 also introduced new conversational topics. S3 and S5 also helped other members of the group in their activities and encouraged them. S3, especially, gave verbal prompting for the rest of the participants.

Furthermore, we observed a decrease in the mediations of the interlocutors. However, it is noteworthy that the mediation of meanings made by others is necessary and important for assigning meanings to the actions of individuals, maintaining the dialogical game and thus favoring the language of the subject. Regarding S1 and considering his large latency time for response, the decrease in mediations provided and guaranteed him the time required to complete his statements. For S5, the mediation of the interlocutor was hardly required because she presented great language potential and, consequently, operating language. The mediations were only necessary when she had difficulties in reproducing her own production due to the apraxia.

The impacts of the use of AAC in the language of the subjects are shown by some of the most relevant episodes drawn from video recordings.

Row	Speaker	Transcription	Verbal meaning process	Non verbal meaning process	AAC meaning process
1	I1	Hey S1, let's say to her what you've done too. She has not seen yet.	Affirmative tone		She moves the symbol board closer to S1
2	S1				He looks at the symbols
3	I1	Point it to her here. What is it that you've done?	Interrogative tone		She shows symbols from category "people"
4	S1				He points to the "security guard" symbol
5	I2	Where is construction worker?	Interrogative tone		
6	I1	This is the security guard. Have you also been a security guard?	Interrogative tone		She points the symbol "security guard"
7	S1	O::pa!	Exclamatory tone		
8	I1	Ih!	Exclamatory tone		
9	S1	Hum!	Exclamatory tone	He smiles	
10	I1	And construction worker?	Interrogative tone		He points to the "construction worker" symbol
11	S1	Oh:!	Exclamatory tone		
cut					

Subtitle: I1 e I2 – researchers; S1 – subject 1

Figure 2 – S1: a new fact of subject's life (13 months after AAC introduction)

In the episode transcribed in Figure 2, the use of the AAC favored the subject's language. Although oral production was restricted (row 7, 9, and 11), his little production assumed large significance regarding his condition. At the time, the members were presenting themselves to S2, who was joining the group. Everyone knew that S1 had been a construction worker but were unaware that he had also worked as a security guard. By using AAC, S1 was able to talk about a new fact of his life (row 4).

S2 used AAC with ease since her introduction to the group, using it spontaneously, especially in situations that she presented greater difficulty to speak (rows 15 and 17). Moreover, S2 used several resources to communicate (rows 3 and 12; 6, 8 and 10; 15 and 17) and benefits from writing and drawing to access the intended word, as shown in rows 2 and 3. The mediation of the interlocutor was important for the assignment of sense and meaning, giving more fluidity to the dialogue. By using AAC in questions, the interlocutor also facilitates the subject's comprehension (rows 1 and 5).

Row	Speaker	Transcription	Verbal meaning process	Non verbal meaning process	AAC meaning process
1	I3	And you? What is your name?	Reticent tone		She shows the symbols with the question
2	S2				She looks on the board where it is her name
3	S2	S2 (S2 name).	Affirmative tone		
4	I4	S2.	Affirmative tone		
5	I3	And you are:: What do you do?	Interrogative tone		She shows the symbols with the question
6	S2			She looks at I3 showing that she did not understand	
7	I3	What do you do? What is your job?	Interrogative tone		
8	S2			Gesture and expression of “no”	
9	I3	No?	Interrogative tone		
10	S2			Head gesture of “no”	
11	I3	Don’t you work?	Interrogative tone		
12	S2	No.	Affirmative tone	Head gesture of “no”	
13	I2	What do you like to do S2? Tell her what you do like to do/ Let’s turn more symbols	Affirmative tone		Looking at the board
14	I2	What do you like to do?	Interrogative tone		She turns the pages of the board to verb symbols
15	S2				She points the “dishwasher” symbol
16	I2	Look! She will point.	Affirmative tone		
17	S2				She points the “cooking” symbol
cut					

Subtitle: I2, I3 e I4 – researchers; S2 – subject 2

Figure 3 – S2: introducing the group members to a visitor (22 months after AAC introduction)

Row	Speaker	Transcription	Verbal meaning process	Non verbal meaning process	AAC meaning process
1	I1	Let's make a sentence with S3's neighbors?	Interrogative tone	She looks at S3	She points to the "neighbor" symbol
2	S3				She looks at the "neighbor" symbol
3	I1	Do you have neighbors?	Interrogative tone	She is looking at S3	
4	S3	Yes.	Affirmative tone	Head gesture of "yes"	
5	I1	Yes?	Interrogative tone	She is looking at S3	
6	I1	And there? Do they make you ha:ppy, sa:d or angry?	Interrogative tone		She holds the symbols "happy", "sad", "angry", and shows to S3
7	S3				She picks up the symbol "happy"
8	I1	Happy?	Interrogative tone	She is looking at S3	
9	S3	Ha:ppy.	Affirmative tone	She is looking at I1	
cut					
10	I1	So say this phrase.	Affirmative tone		
11	S3	Issau: Oh issau:	Reticent tone		She points to the "S3", and "neighbor" symbols
12	I1	Neigh:bor.	Affirmative tone	She is looking at S3	
13	S3	Oh:: ai oh.: / eat. Hum::!	Exclamatory tone		She points to the "eat" symbol
14	I1	You will eat.	Affirmative tone	Head gesture of "yes"	
15	I5	So come on / S3. I	Reticent tone	She is looking at S3. She points to herself	
16	S3	I.	Affirmative tone	She is looking at I6	
17	I5	Drink.	Affirmative tone	She is looking at S3	
18	S3	Coffee:	Affirmative tone	She is looking at I6	
19	I5	Coffee:	Affirmative tone	Head gesture of "yes"	
20	S3	Cake.	Affirmative tone	She is looking at I6	
21	I1	Where?	Interrogative tone	She is looking at S3	
22	S3	Is::	Reticent tone		She points the "neighbor" symbol
23	I1	Vi (part of word "neighbor" in Portuguese)	Reticent tone – Oral prompting	Head gesture of "yes"	
24	S3	Zi (part of word "neighbor" in Portuguese)		She is looking at I1	She is pointing to the "neighbor" symbol
25	I1	Zi (part of word "neighbor" in Portuguese)	Reticent tone – Oral prompting	She is looking at S3	
26	S3	Neighbor.	Affirmative tone	She is looking at I1	She is pointing to the "neighbor" symbol
27	I5	That's:it!	Exclamatory tone	Head gesture of "yes"	
28	S3	Ai essa essau!	Exclamatory tone	She points to her head	
cut					

Subtitle: I1 e I5 – researches; S3 – subject 3

Figure 4 – S3: forming sentences with symbols (10 months after AAC introduction)

In this episode (Figure 4), S3 uses multiple forms to communicate the desired content and thus keep the dialogue with her interlocutor, especially with the use of oral production (as observed in rows 4, 9, 13, 16, 18, 20, and 26), and with the use of AAC (rows 7, 11, 13, 22, and 24). Moreover, we observed that S3 relies on the interlocutor's speech and on the symbols to access what she wants to express by oral production (rows 13 and 22 to 26). In this episode, we also noticed the presence of oral stereotypies produced by S3 (rows 11 and 28). Such stereotypies sound to the interlocutor with diverse intonations and consistent with the speech, as if they were word substitutions for what S3 failed to produce due to her difficult lexical access.

Row	Speaker	Transcription	Verbal meaning process	Non verbal meaning process	AAC meaning process
1	I1	Choose something to buy.	Affirmative tone		
2	S4			She looks at I1	She points to the "watermelon" symbol
3	I1	What is this?	Interrogative tone		
4	S4	Mancia. (part of word "watermelon" in Portuguese)	Affirmative tone		
5	I1	Water:melon.	Affirmative tone		
6	S4	Cia. (part of word "watermelon" in Portuguese)	Affirmative tone		
7	I1	So let's put a watermelon here.	Affirmative tone		She picks up the "watermelon" symbol, and puts it on the shopping list
8	I1	What else? As if buying for your home. What does your family like?	Affirmative tone		
9	S4			She looks at I1	She points to the "pineapple" symbol
10	I1	Like			
11	S4	Bacaxi. (part of word "pineapple" in Portuguese)	Affirmative tone		
12	I1	Pineapple.	Affirmative tone		
cut					
13	S4			She calls I1	She shows the "lettuce" symbol puts it on the shopping list
14	I1	Lettuce.	Affirmative tone		
cut					
15	I1	And to drink?	Interrogative tone		She puts the "beverages" symbol near S4
16	S4				She picks up the "juice" symbol and puts it on the shopping list
17	I1	Box of juice.	Affirmative tone		
18	S4				She takes the "juice" symbol off the shopping list
19	S4				She picks up the "milk" symbol
20	I1	Milk?	Interrogative tone		
21	S4	Yes.	Affirmative tone	Head gesture of "yes"	
cut					

Subtitle: I1 – researcher; S4 – subject 4

Figure 5 – S4: shopping list (18 months after AAC introduction)

The transcription above shows that S4 uses the AAC symbols several times (rows 2, 9, 13, 16, and 19), and these symbols work as a prompting for her to access the desired word and produce it orally, as occurred in rows 2 to 4 and 9 to 11. It is Important to consider the involvement of the researcher, who asks questions and assigns meanings to the actions of S4, building a dialogue and thus favoring the subject's language. The subject follows the topic of discourse in row 13 by doing her shopping list, even without the presence of the researcher, and signals such action by calling the interlocutor to show a new item on the list. Moreover, we observed that S4 is assisted by the picture in giving meaning to the symbol, as shown in rows 16 to 21.

Row	Speaker	Transcription	Verbal meaning process	Non verbal meaning process	AAC meaning process
1	I2	So come on. Mrs. S5/ Can we continue mrs. S5's history? Can we?	Interrogative tone		
2	S3	We can.	Affirmative tone		
3	I2	We can. So come on.	Affirmative tone		
4	S5	Cole (part of word in Portuguese), no, sister-in-law me mé is Amélia, Lono:ra, a Ci:// Ci: Cirinija, a. a:: a::	Affirmative tone		She points to the "sisters-in-law" symbol
5	I6			She articulates the name that S5 is trying to speak	
6	S5	A::	Affirmative tone		
7	I6	Eu	Affirmative tone – Oral prompting		
8	S5	Eunice, Aparecida.	Affirmative tone		"Sisters-in-low" symbol (Eunice and Aparecida)
9	I2	Are there four sisters-in-law?	Interrogative tone		
10	I6			Gesture of "five" with her fingers	
11	I2	Five sisters-in-law?	Interrogative tone		
12	S5	Yes yes.	Affirmative tone		
13	I2	What else?	Interrogative tone		
14	S5	É:// a my brother is two.	Affirmative tone		She points to the "two" and "brother" symbols
15	I2	Two brothers.	Affirmative tone		
16	S5	A::/ a::/ a Jaquim:// no.	Negative tone		She points to the "brothers" symbols
17	I2	It is the opposite, isn't it? What is written? What name comes first?	Interrogative tone		
18	S5	A/ a João and a Jaquim. (Brazilian names)	Affirmative tone		She points to the "brothers" symbols (João and Joaquim)
18	I2	Joaquim.	Affirmative tone		
20	S5	He lives in Mato Gosso. (a state of Brazil)	Affirmative tone		
21	I2	Who lives in Mato Grosso? João or Joaquim?	Interrogative tone		
22	S5	No. Is::	Affirmative tone	Gesture of "two" with her fingers	
23	I2	Both?	Interrogative tone		
24	S5	Yes yes yes!	Exclamatory tone	Head gesture of "yes"	
25	I2	Ah! Both live in Mato Grosso.	Exclamatory tone		
26	S5	In can Canto Gi Gande. (name of a Brazilian city)	Affirmative tone		

27	I2	Campo Grande?	Interrogative tone		
28	S5	Yes.	Affirmative tone		
29	I2	Ah::!	Exclamatory tone	Head gesture of “yes” and smiles	
30	S5	Is/ a Jaquim lives// in::	Reticent tone		
31	I2	Joaquim lives::	Reticent tone		
32	S5	É:://	Reticent tone		She searches in her agenda
33	I2	Where is your clue?	Interrogative tone	Smiles	
34	S5	In:: in::	Reticent tone		
35	I2	Cuiabá? (name of a Brazilian city)	Interrogative tone		
36	S5	NO!	Exclamatory tone	Head gesture of “no”	
37	I2	In Campo Grande too?	Interrogative tone		
38	S5	NO!	Exclamatory tone		
39	I2	Near (unintelligible speech)	Interrogative tone		
40	S5	A: Mato/ no// Javieiro do Sul.	Affirmative tone		
41	I2	Something “Sul”, isn’t it?	Interrogative tone		
42	S5	Yes.	Affirmative tone	She writes the word “Fátima”	
43	I6	Fá:tima!	Exclamatory tone	She reads what S5 wrote	
44	I2	Ah:: Fátima do Sul!	Exclamatory tone		
45	S5	Yes yes.	Affirmative tone	Head gesture of “yes”	
46	I2	Is near Cuiabá:?	Interrogative tone		
47	S5	Yes// no!	Exclamatory tone		
48	I2	No, near Campo Grande!	Exclamatory tone	Smiles	
49	S5	Yes!	Exclamatory tone	Smiles	
50	I6			Smiles	
51	S3	Essa essau!	Exclamatory tone		
52	I2	She knows everything, isn’t it S3?	Interrogative tone		
53	S5	Yes::	Affirmative tone		
54	S3	Oh yes!	Exclamatory tone		
55	S5	É:/ a a do foi a passeá dua veisse (she tries to talk that she traveled twice in Portuguese)	Reticent tone	Gesture of “two” with her fingers	
56	I2	Did you go out there twice?	Interrogative tone		
57	S5	No. A: a ondimo. O-ni-mo. (she tries to talk the word “bus” in Portuguese)	Affirmative tone	She picks up the pencil	
58	I6	Bus?	Interrogative tone		
59	S5	Yes.	Affirmative tone	Looks at I6 and head gesture of “yes”	
60	I6	Bus. Did you go by bus?	Interrogative tone		
61	S5	Yes! A: a alone.	Affirmative tone		
cut					

Subtitle: I1 e I3 – researches; S5 – subject 5

Figure 6 – S5: talking about the family (34 months after AAC introduction)

The transcription shows that S5 had no difficulty in comprehending or in using AAC to communicate. We observe that S5 used several meaning processes, such as the use of symbols and writing, to access what she wants to talk (rows 4, 8, 14, 16 and 18). With AAC, S5 was able to talk about her family and her everyday life activities in this episode. She also started new topics of conversation, for instance, telling where her brothers live (rows 20, 26, 40, and 42), about visiting them (row 52) and traveling by bus (rows 57 and 61).

Moreover, S5 used the AAC board to talk spontaneously, but gave preference to attempting oral production, as seen in this episode. Additionally, it can be seen that S5 builds oral statements, but some of her productions are hindered by praxis difficulties (rows 4, 16, 26, 40, 55, and 57).

Reports about the use of AAC

The participants' reports concerning language and the use of AAC show that they still have difficulties to communicate with others and to express the desired content. This is evidenced by their answers to a question about how they talk to other people, in which they referred to using gestures (S2 and S3), pointing (S1) and guessing (S1, S2, S3, S4). Additionally, some answers mentioned using AAC (S1 and S5), trying to talk (S1, S3 and S5) and writing (S5). Figure 7 illustrates the answers given by S1.

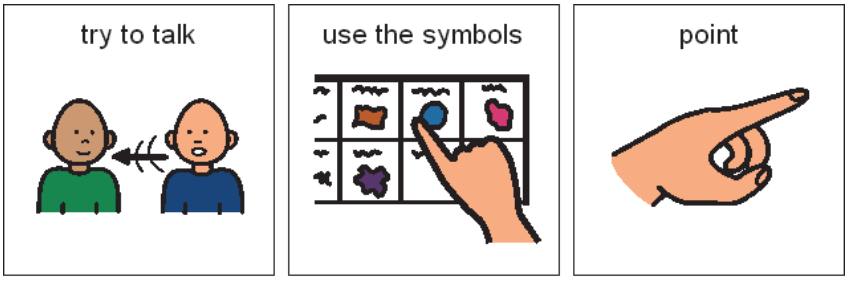

Figure 7 – Answer from S1 about communicating with people

The subjects also reported that they like to use the communication board and the AAC resources, and that it had contributed a little (S1 and S2) or much (S3, S4 and S5) in their communication with others. Some subjects needed more help than others, as indicated by S2. Also, S1 and S2 found it difficult to use the AAC resources. Figure 8 illustrates what S5 thinks about the use of AAC for communication.

The reports also show that the AAC has helped the conversation among the group and between the subjects and others. AAC has also favored the development of activities such as games (S1 and S5), construction of poetry (S1) and greeting cards (S1, S2, S3, S4 and S5), singing (S2 and S3) and recipe sharing (S3, S4 and S5). Figure 9 shows the activities that S3 enjoyed the most with the help of the ACC.

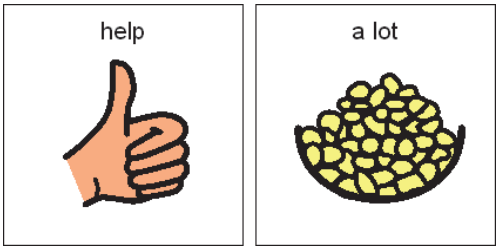

Figure 8 – Answers from S5 about the use of the AAC board and symbols for communication

Figure 9 – Answer from S3 about which activities with the help of AAC she enjoyed the most

DISCUSSION

Some authors[21,22] discuss the use of AAC in aphasia, the correct time to start intervention and what types of aphasia can possibly benefit from this approach. They come to the conclusion that everyone with aphasia can achieve improvements by using AAC, regardless the type and degree of the impairment. This corroborates our findings, since all subjects benefited somehow from the AAC resources, even though in different levels, as shown by the transcription analysis.

Moreover, some authors[21-23] assert that when aphasic subjects are unable to produce functional language, which does not meet their communication needs through speech, it is important to use other strategies. One of those strategies is AAC, which includes drawings, structured or unstructured gestures, and writing, as evidenced by our results.

The transcribed episodes show that subjects make use of various communication forms to express the desired content, for instance, the use of AAC, own gestures, facial expression, oral production, albeit restricted in cases of S1 and S2 subjects, and writing, in the case S5. We found along the study, through the analysis of data, that the subjects made greater use AAC and required less support from their own gestures, which facilitated communication with others, and avoided guessing and failed attempts at conversation. Similar findings were also reported by other authors[13,17], who have considered the possibility of using different forms of language in working with aphasic, with the AAC resources providing the access to other communication forms such as oral language.

Some studies[13,17,24] point out that the use of the AAC does not inhibit speech and can encourage oral language, since the use of communication facilitators allows the subjects to make themselves understood in everyday situations, which favors their expressiveness.

The results show that the support of AAC helps the subjects to assume their place as speakers[13,17]. In this sense, some researchers[12,13] argue that, in spite of the linguistic and cognitive difficulties due to brain damage, aphasics keep their status as social subjects and, therefore, their language.

The analysis of linguistic-cognitive aspects of the studied subjects highlights the role of the other, be it a researcher or another subject. This role is especially important in discursive activities to the process of meaning and verbal interpretation in order to overcome the language difficulties related to aphasia, as evidenced by the studies following the Discursive Neurolinguistics approach[10,13,16].

Working with AAC allowed greater participation of subjects in group activities, which contributed to improve their linguistic productions and social interaction. Similar results were presented in other studies[13,23] showing that AAC favors linguistic-cognitive and psychological aspects, which contributes to a increased independence in communication and participation in life activities.

CONCLUSION

The results of the impact of AAC on the aphasic language, in a discursive perspective of language, allow us to better understand this theme in speech and language therapy.

We observed that the linguistic difficulties of the studied subjects have not prevented them from placing themselves as subjects in language. Moreover, the dialogic, contextualized activities and the interlocutor's mediation contributed to the processes of mediation and (re) signification of the subject's statements. The AAC, in this context, was clearly a facilitator of discourse production and speech for these subjects.

The use of AAC can increase the linguistic possibilities of people with aphasia and promote changes in social interaction and social relationships, favoring a more active participation of the subjects. Furthermore, the use of AAC favored discursive and dialogic productions on both clinical and daily life situations of aphasics, being an important mediator of the linguistic process in aphasia, regarding the prospect of comprehensive care, health promotion and quality of life of these individuals and their families.

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RESUMO

Objetivos: verificar as formas de comunicação e desempenho linguístico-cognitivo de afásicos a partir da Comunicação Suplementar e/ou Alternativa (CSA) e conhecer sua percepção. **Métodos:** pesquisa de abordagem qualitativa de corte longitudinal, aprovada pelo CEP, com amostra de 5 sujeitos afásicos não fluentes. A coleta de dados ocorreu por meio dos prontuários dos sujeitos, registros em vídeo do acompanhamento fonoaudiológico com a CSA e dos seus depoimentos acerca da utilização da CSA. **Resultados:** os sujeitos utilizam diversas formas de comunicação para se expressar além de fazerem maior uso da CSA, necessitando menor apoio de gestos próprios ao longo do estudo, o que facilitou a comunicação com o outro e diminuiu o uso de adivinhações e tentativas frustradas de conversas. O uso da CSA repercutiu no aumento da produção oral. Os sujeitos referem gostar de utilizar os recursos da CSA e que estes contribuem de alguma forma na sua comunicação. **Conclusão:** os resultados evidenciam que o apoio da CSA contribui para que os sujeitos estudados pudessem assumir seus lugares como falantes, superando suas dificuldades de linguagem. Deste modo, favoreceu que eles se colocassem como sujeitos linguísticos e sociais. As atividades dialógicas e contextualizadas, bem como a mediação do interlocutor, favoreceram o processo de (re)significação de seus enunciados. Portanto, a CSA, nesse contexto, mostra-se como importante recurso mediador e facilitador do processo linguístico nas afasias não fluentes com repercussão na produção oral.

DESCRITORES: Afasia; Auxiliares de Comunicação para Pessoas com Deficiência; Linguagem; Fonoaudiologia

REFERENCES

1. World Health Organization. Noncommunicable diseases – Country profiles 2011. Geneva: WHO; 2011. 207p.
2. Brasil. Ministério da Saúde. A vigilância, o controle e a prevenção das doenças crônicas não transmissíveis: DCNT no contexto do Sistema Único de Saúde brasileiro. Brasília: OPAS/OMS; 2005. 80p.
3. Strong K, Mathers C, Bonita R. Preventing stroke: saving lives around the world. Lancet Neurol. 2007;6:182-7.
4. Lotufo P. Stroke in Brazil: a neglected disease. São Paulo Med J. 2005;123:3-4.
5. Brasil. Ministério da Saúde – Secretaria de Vigilância em Saúde. Saúde Brasil 2007 – Uma análise da Situação de saúde: perfil de mortalidade do brasileiro. Brasília: Ministério da Saúde; 2008. 50p.
6. Feigin V. Stroke in developing countries: can the epidemic be stopped and outcomes improved? Neurology. 2007;6:94-7.
7. Fernandes PT, Avelar WM, Mory SB, Hansen R, Li LM. Perception and attitudes towards stroke by professionals of emergnecy medical service

in an urban city in southeastern Brazil. J Stroke Cerebrovasc Dis. 2009;18:195-7.
8. Mansur LL, Radanovic M, Rüegg D, Mendonça LIZ de, Scaff M. Descriptive study of 192 adults with speech and language disturbances. São Paulo Med J/Rev Paul Med. 2002;120:170-4.
9. Morato EM (org), Tubero AL, Santana AP, Damasceno B, Souza FF de, Macedo H de O et al. Sobre as afasias e os afásicos: subsídios teóricos e práticos elaborados pelo Centro de Convivência de Afásicos (Universidade Estadual de Campinas). Campinas: Editora Unicamp, 2002.
10. Coudry MHI. Diário de Narciso: discurso e afasia: análise discursiva de interlocuções com afásicos. 3ª ed. São Paulo: Martins Fontes, 1986/2001.
11. Bakheit AMO. The rate and extent of improvement with therapy from the different types of aphasia in the first year after stroke. Clin Rehabil. 2007;21:941-9.
12. Fedosse E. Acompanhamento fonoaudiológico de um sujeito afásico não-fluente: foco na continuidade sensório-motora. Disturb Comum. 2007;19(3):403-14.
13. Chun RYS. Processo de significação de afásicos usuários de comunicação suplementar e/ou alternativa. Rev Soc Bras Fonoaudiol. 2010;15(4):598-603.
14. Couto EAB. Utilização dos sistemas aumentativos e alternativos de comunicação na reabilitação das afasias. In: Almirall CB, Soro-Camats E, Bulto CR. Sistemas de sinais e ajudas técnicas para a comunicação alternativa e a escrita. São Paulo: Livraria Santos Editora, 2003, p. 231-41.
15. Lasker JP, Garrett KL. Aphasia and AAC: Enhancing communication across health care ettings. The ASHA Leader. 2008;13(8):10-3.
16. Chun RYS, Fedosse E, Coudry MIH. Comunicação Suplementar e/ou Alternativa: avaliação e acompanhamento fonoaudiológico de sujeitos não falantes. Diretrizes, Normas e Condutas – Área de Saúde FCM/UNICAMP. 2007. Disponível em: <www.fcm.unicamp.br> Último acesso: 09 de janeiro de 2012.
17. Galli JFM, Oliveira JP de, Deliberato D. Instrodução da comunicação suplementar e alternativa na terapia com afásicos. Rer Soc Bras Fonoaudiol. 2009; 14(3):402-19.
18. Hodge S. Why is the potential of augmentative and alternative communication not being realized? Exploring the experiences of people who use communication aids. Disability & Society. 2007;22(5):457-71.
19. Cameron D, Markowicz L. Augmentative and alternative communication: International perspective. Occupational Therapy Now. 2009;11(1):12-4.
20. Coudry MIH. Projeto Integrado em Neurolinguística: avaliação e banco de dados, 2006. CNPq: 521773/95-4 (impresso).
21. Beukelman DR, Fager S, Ball L, Dietz A. AAC for adults with acquired neurological conditions: a review. Augment Altern Commun. 2007;23(3):230-42.
22. Beukelman DR, Ball JR, Fager S. An AAC personnel framework: adults with acquired complex communication needs. Augment Altern Commun. 2008;24(3):255-67.
23. Johnson RK, Hough MS, King CA, Vas P, Jeffs T. Functional Communication in Individuals with Chronic Severe Aphasia Using Augmentative Communication. Augment Altern Coomun. 2008;24(4):269-80.
24. Chun RYS. Comunicação Suplementar e/ou Alternativa: favorecimento da linguagem de um sujeito não falante. Pró-Fono Rev Atual Cient. 2003;15(1):55-64.

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