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Case Report Open Access

Bilingual Aphasia - Two Case Reports and Systematic Review

Serafín Rodríguez Palero*, María Hernandez Manada, María Teresa Sánchez Polo and Rosario Barrios Sotillo

Hospital Central de La Cruz Roja San Jose y Santa Adela, Spain

***Corresponding author:** Palero SR, Hospital Central de La Cruz Roja San Jose y Santa Adela Rehabilitation, Spain, Tel: 34666945493; E-mail: serafinrodriguez@hotmail.com

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Introduction

Bilingualism defines as the use of two languages in the same region or spoken by one person [1] in the dictionary of Royal Academy of Spanish. We considered better for the present study spoken by one person because is that happens in our two cases in our outpatients usually.

Aphasia is the defect of the consecutive language in a cerebral wound that perturbs the use of precise rules for the production or comprehension of a verbal message [2].

In dates of Statistics National Institute (INE), the Spanish populations in 2011 are 47190493 habitants, with 5730667 of foreign people, approximately. The majority of them are from the Central and South America, European Union (UE) countries and Maghreb countries [3].

Actually, bilingualism and multilingualism are usual because of the migrant movements between countries, in addition to the coexistence of the official language in a country with other regional languages.

Factors like elevate immigration, bilingual education and the coexistence with his local languages, have led too many multilingual population centers worldwide and the result of many bilingual people.

In Spain strokes require about 120-130 thousand new cases per year, being the first death cause in women and the second in men, and the most important permanent disability disease [3]. The population ageing increases vascular brain disease, it is estimated that 45% of the survivors of stroke suffer serious permanent sequel with a decrease of life quality. Between 21-38% of stroke survivors will have some language disorder [4].

In Spain prevalence dates of aphasia are not sure, but it is estimated that the number of new cases is higher to the count of Parkinson's disease, multiple sclerosis and muscular dystrophy cases. Language disorder after a brain injure is one of the main determinant of quality life [5].

At the clinical practice, everyday are more frequently multilingualism patients that need treatment for language or cognition disease after a stroke or other neurological pathologies. Bilingual aphasic patients are very heterogeneous because of the different characteristics [6], expression and the language recovery patterns [7]. We have limited clinic resources to make a correct diagnose and a good therapy approach at those patients [8,9].

Case Report A

We have the case of a 54 years old man, who works as an informatics engineer. He came to our consult after hemorrhage stroke with a language disorder.

Previous medical history clinic

Arterial hypertension in treatment, chronic obstructive pulmonary disease, moderated daily alcohol consumer (6/7 beers in the morning and a couple of high alcohol shots in the evenings), floaters disorder under ophthalmology surveillance.

Presents ischemic stroke in the territory of right middle cerebral artery (MCA), was treated with fibrinolysis without getting perfusion after the procedure.

Italian who lived in Spain for ten years, Independent for the activities of daily life. He speaks Italian, proper Spanish and a little bit of French and German, Italian at home and Spanish at work.

At the first exploration of the language presents preserved fluency, not as well compression, repetition or denomination. This consult were very complicated, because of the patient looks like only understand Italian presented orally. We did the Spanish Version Boston Test for aphasia and the results were so poor (Table 1).

Scale of severity 40
Lenght phrases 20
Melodic line 20
Gramatical form 30
Social simple answer 10
Discrimination words 0
Orders 0
Complex Ideational material 0
Oral agility (verbal agility) 40
Automatized sequences 30
Repetition word 15
Repetition Phrases 0
Denomination answer 10
Test of vocabulary Boston 45
Denomination for categories 0
Oral agility (verbal agility) NS
Fonetic paraphrases 0
Verbal paraphrases 40
Neologism 0

Issuance of multiple words 0
Match types of writing 0
Match numbers 0
Match Word-cartoons 10
Readings words 40
Reading phrases 0
Comprehension oral phrases 0
Comprehension phrases and paragrah 0
Letter form 0
Choose letter 0
Motor facility 0
Vocabulary 0
Fonetics 0
Irregular commun words 0
Write denomination cartoons 0
Narrative writing 0

Table 1: Boston aphasia spanish version score.

At qualitative point of view were observed several auditory discrimination difficulties at the level of word with a possible change of phonological lexical access and preservation of phonological acoustic conversion. The patient can´t distinguish between similar words which different in one letter for examples the words in Spanish gato and dato (cat and date) or can´t differentiate if the hear are different or the same. There is no influence in comprehensive tasks of variables such as length, but if at the variables of imaginably or frequency. Our patient don´t understand that the short formulation task than longer dual task. These difficulties prevent, in addition, the understanding of simple and complex orders presented aurally. At expressive point of view, we appreciate phonemic paraphrases at repetition, reading and denomination, these indicates alterations in phonemes rather than lexicon system. There is a possibility of a problem at the motor planning that we can´t value at these moments for the oral and written comprehensive difficulties, which the patient presents. He is able to denominated frequent and some infrequent object properly, but with marked influence of this variable in his access. It is not clear whether alterations in this sense are only for a problem of access or also at the semantic system. We believe that it can be a problem of access because of the gestures associated to the elements, the object he can´t denominated properly try to explain the words with gestural language. We considered that he know more words than he can say in Spanish and of course in Italian At the instrumental language skills, it will be noted that it is able to read spontaneously some common words regardless of the structure that have as well as copying them. In reading, it seems that is not only automatic rather than is able to understand the meaning of the word, although because of its limitations is comprehensive and expressive complex determine with greater accuracy. In writing, it appears some execution alterations with difficulties in the trace orientation and it duplication. Is aware of them and he corrects them. It is not able to write spontaneously and the copy of prayers is deficient. Finally, note that the patient is conscious of the limitations and problems that presents and he try to solve them.

With global aphasia diagnosis he did speech treatment based in plurisensorial association, memory techniques, aural discrimination exercises, access to the internal lexicon and designation, phonatory facilitation techniques, oralfacial praxis, vocalizations, therapies to improve syntactic production, writing exercises and traces.

After six months of treatment presents the following exploration

Understands simple verbal orders in Spanish and we have erratic responses that are not always simple. He is able to control the phonemes /k/, /b/ and /l/ in two syllables sequence. Relates better Spanish words with images than before beginning the speech therapy, and better images and Spanish word than Italian word. In Spanish conversation reply words loose without much content asking for Italian translation. Continuing with the affectation in the comprehension, repetition, and Spanish and Italian expression.

Case Report B

We present a woman 45 years old, administration secretary, born in paris (Spanish parents), living in spain since 18 years. In france she studied at french college and at home spoke spanish.

Intraparenchymal hemorrhage Frontoparietal left with ipsilateral intraventricular hemorrhage associated with diffuse cerebral edema treated with bilateral Frontoparietal decompresses craniotomy urgent.

The patient was treated during the hospital admission and during six months of physical therapy for stroke and speech for the language consistent in set patterns of actions by repetition, plurisensorial association, memory techniques, aural discrimination exercises, increase vocabulary, and denomination, facilitation techniques phonatory abilities, orofacial praxis, vocalizations, therapies to improve the syntactic production.

In the initial exploration presented mixed aphasia with alteration of repetition, nomination, understanding and expression, with automatic language preserved and alteration of the reading. No alteration in phonoarticulatory level. Faults in temporal sequence, with situational awareness preserved. Very limited expression to yes/no response with inconsistent and aural compression highly altered. Also presents an alteration in the visual field difficult to establish by confrontation due to the disorder of the language and understanding. Reading simple familiar words preserved. She also focused and keeps the attention for short periods of time. Moderate alterations of executive functions in terms of planning and selection of strategies of complex problems. She raises solutions but fails when she comes to execute them and sometimes perseveres in the responses failed retrograde amnesia with a moderate learning curve very slow and erratic.

After the treatment persists the mixed aphasia of greater engine component, with discrete alteration in the repetition, better nomination, better understanding of simple commands of up to two simple commands and a greater communicative intention although with motor problems, with automatic language preserved and disturbed reading remains impossible a change of dominance for the same by executive dysfunction. Although in activities such as clothing and toiletries if acquired great skill with the left hand. No alteration in phonoarticulatory level. Verbal expression with great vocabulary, even with limitations but presenting a more communicative intention in

addition to seeking support from the gestures as aumentative and alternative method. There are French words that routinely used to respond to simple questions, for example “How old are you?” but she is able to answer in Spanish. Better understanding by track hearing although toxic with single orders of more than two commands. More time to focus and concentration in tasks on both treatment and the large home improvement of the executive functions in terms of planning and selection of strategies of complex problems. Retrograde amnesia what makes to be repeat many instructions in each session and slows the progression curve. She can solve puzzles of up to 9 small parts without problems and without looking at the original drawing. When presented drawings of everyday objects that must relate to cards with the names written, presents some faults in Spanish that does not present with the French typeface.

Discussion

The aphasia must be understood as something more than a simple language alteration, and also interferes in verbal expression and written equally in the compression as both oral reader of the patients.

In the clinical case A: the patient after the treatment continues with an aphasia that could be classified as global. Appears to have presented a pattern of selective recovery, although presents an affectation involvement of the first language (Italian) both oral and written seems to understand even partially simple oral orders. While the second (Spanish) seems to have no understanding or written or oral and reply with empty words of content.

This case presents a limitation because they could not be made the test of Boston in Italian (there is cross-cultural adaptation to the language) and neither could do the complete treatment in Italian, as none in the clinic speaks Italian. Another limitation was the frequency of therapy, because it only has been able to give with a frequency of two days a week.

In the clinical case B

After the treatment, the patient continues with an aphasia that could be cataloged as mixed pattern. This case presents the simultaneous learning of Spanish and French at the same time, went to French school, where its environment only spoke that language at home his parents and brother were communicated in Spanish with her. After a long stay in France he returned to Spain with the Spanish speaking family and speaking French at work. What if he attends the written literature of the first language recovery may be the most used or which are learned first, so it makes us ask ourselves if the words commonly used in French or the cards that relates better with names in French are the product of a mixture of pathological codes, or a pattern of recovery where the first language should be French and our patient presenting a differential pattern where involvement is in varying degrees in both languages and also the different ways (oral/written) also have a different involvement.

In this case the pattern of recovery has been better and the patient is also more communicative intention after the months of treatment. Although continues with an important Executive dysfunction for complex orders, you have great support from the environment which has given them a natural training to overcome certain disabilities in the communication that the patient presents. The evolution and prognosis of both cases very different but are a reflection of the variability that exhibits this type of patients.

PubMed search for the terms "bilingual aphasia" resulting in 131 articles (46 in the last five years), which shows the large number of studies on the treatment of aphasia in bilingual patients. But it is necessary to research wider and focused studies that are targeted at specific points of the language skills. These investigations can help to systematize the treatments and create protocols since currently studies that are published are result of small series of cases, which often makes it difficult to compare the different groups.

For speech treatment [10] the same principles applied to the monolingual aphasic patients can be applied to the bilingual aphasic. The selection of the treatment strategies depending [11] on the accessibility [12] of the objectives of language [13,14] have been shown to be effective [15]. In addition some traditional treatments found effective with bilingual patients, including the general approach and phonetic cueing therapy. Melodic intonation therapy have proven to monolingual patients but needed more research in the case of bilingual.

But the treatment of aphasia must go beyond any protocols developed in monolingual patients. Objectives should be based on competences and linguistic patterns of the patient before and after the aphasia.

It´s be considered the specifics syntax [15] of each language [16] speak the patients [17] because they can be different, and perhaps must work each strategies in the different language [18,19]. Obviously the treatment of a single language does not development all the range of possible approach therapy [20,21].

There are preliminary data from evidence for the treatment of the second language [22-24] and the crossing of linguistic transfer in bilingual aphasic patients, although larger studies are needed to say it with more evidence. Currently there are a limited number of papers that we can meet similar criteria of patients and systematization to be able to be compared between and gets results. Knowledge about the mechanisms of injury and the correlation with the anatomy, mechanisms of representation of language in the brain and recovery will make to better understand these speech pathologist and these patients [25-28].

There are studies that show the linguistic crossroads of first and second language in areas such as reading or writing or knowledge language. The approximation of behavioral therapy is based on the possibility that the two lexicons of bilingual people can be functional and neurologically interconnected, allowing crossing linguistic and recovery on both languages [28-31].

The trained language also influences the result. There are studies that demonstrate that progress in the vocabulary of the weaker language recovery encourages the development of strong language recovery [32].

They have published studies where the approach of treatment focuses on aspects of the syntax to be more effective if it focuses on the grammar [33].

The cognitive therapies are appropriate in the treatment of patient’s bilingual if there are associated cognitive deficits [34,35].

The compensation strategies in bilingual patients deserve special mention, since a language can compensate for the deficits of the other making do it in the right way of the incorrect words, stimulating weakness language in right form [36-38].

Although not planned in the code changes may interfere with the communicative intention, if it is used as a compensatory mechanism, they can be useful especially if the patient lives in a bilingual community. So it is better adapt the environment of the patient to caregivers and people surrounding you know the code or the paraphrase that the patient uses pathological way.

There are numerous alternatives and augmentative [39-41] communication systems translated in many languages can be used simultaneously in both languages, and can be a solution to the language and cultural barriers arising in the treatment many times in which the therapist not speak the language the patient [42-44].

Care for these patients will always assume a challenge that approach should do from a multidisciplinary team with rehabilitation specialist, speech therapists and Neuropsychology.

We have in our two case report a big limitation in the exploration and in the Speech therapy because we can´t do it in Italian or French. For these reason maybe the conclusion are partial and don´t exploit all the potential of our patient. In addition we don´t have in the Hospital Functional Resonance or Trascraneal Stimulation that increases the researcher point of view, but we show two out-patient every time more frequently in our clinical practitioner diary.

In conclusion we can say: as they advance the techniques of image, our knowledge of the clinic and operating on the brain, seems to be increasing our ignorance of certain functions and means of compensation for injuries that occur. In a plural multicultural society are increasingly frequent queries of bilingual patients with language disorders. Patients with aphasia have always are a challenge in assessment and treatment. There is evidence in favor of doing therapies in intensive way, of the Melodic Intonation Therapy and Transcranial Stimulation Therapy. It must be training in both languages to exploit the existing potential.

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