Language alterations in elderly patients with dementia assessed with the MAC Battery

Alterações de linguagem em pacientes idosos portadores de demência avaliados com a Bateria MAC

Cristine Koehler[1], Gigiane Gindri[2], Angelo José Gonçalves Bós[3], Renata Mancopes[4]

ABSTRACT

Purpose: To identify language deficits in a group of elderly patients with dementia in tasks of free lexical retrieval, lexical retrieval with orthographic and semantic criteria, interpretation of metaphors and of narrative discourse, from the Montreal Communication Evaluation Battery – MAC Battery, as well as to verify the frequency of deficits. **Methods:** Participants were 13 patients with mild to moderate dementia, treated at the Neurology sector of the Ambulatory of Movement Disorders and Dementia of the *Hospital Santa Clara* of the *Irmandade Santa Casa de Misericórdia de Porto Alegre* (ISCMPA). The neuropsychological assessment instrument was the MAC Battery, and the tasks were applied in the following order: free lexical retrieval, lexical retrieval based on orthographic criteria, lexical retrieval based on semantic criteria, interpretation of metaphors, and interpretation of narrative discourse. **Results:** The group of patients with dementia showed impaired performance in all tasks from MAC Battery that were evaluated, with significant difference. Furthermore, participants presented higher frequency of deficits, in descending order, in partial retelling of narrative discourse tasks (essential and present information), followed by the tasks of lexical retrieval with orthography and semantic criteria, and full retelling of narrative discourse. At least two patients showed deficits in some of the five tasks performed from the MAC battery. **Conclusion:** Language evaluation using the MAC Battery allowed the verification of language processing deficits in elderly with dementia, characterizing that this instrument is also applicable to this clinical population.

Keywords: Communication; Language; Assessment; Dementia; Alzheimer's disease

INTRODUCTION

The complexity of social problems related to the impact caused by the increase in life expectancy is directly reflected in the health of the elderly and the maintenance of their presence along with the family[1]. Neurodegenerative diseases, such as dementia, characterize a large portion of this population. The prevalence of dementia in the general population is about 1%, and increases up to 20% in the elderly population[2]. Variables such as age, socioeconomic status, heredity, and gender are important risk factors for the development of dementia. It is estimated that the incidence of dementia doubles every five years of life after 60 years of age[2].

The International Classification of Diseases (ICD-10)[3] and the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)[4] indicate that the diagnosis of dementia is based mainly on the presence of decline in memory and other higher brain functions, such as language, praxis, ability to recognize and identify objects, abstraction, organization, capacity of planning and sequencing. The diagnosis of dementia requires, however, the occurrence of memory impairment, although this function may be relatively preserved in the early stages of some types of dementia, such as frontotemporal dementia[5].

Among dementia, the Alzheimer's disease (AD) is responsible for more than 50% of the cases after 65 years of age. The disease is distinguished by a degenerative process that initially affects the hippocampal formation, with subsequent impairment of associative cortical areas and relative preservation of primary cortices. This distribution of the pathological process

causes the clinical disease to be characterized by cognitive and behavioral changes, with preservation of motor and sensory functions until more advanced stages of the disease[2].

The first symptom of the disease is usually memory decline, especially for recent events (episodic memory), and spatial disorientation, cognitive aspects mostly dependent on the hippocampal formation. Language disorders (especially anomie) and deficits in planning (executive function) and visuospatial abilities emerge with the evolution of the clinical picture[5]. Thus, memory deficits are the most frequently mentioned by the family, and the most strongly evidenced in the clinical evaluation of the patient since the onset of the disease[6,7].

The presentation of the disease is classified into three stages, lasting in average two years. The first stage is dominated by memory impairment, predominantly deficits in the episodic subsystem, but also impairing semantic memory and language. In the second stage, more generalized loss of cognitive functions, such as praxis, gnosis, executive functions, and ability to solve problems occur, with more noticeable impact on everyday life. Finally, the third and final stage is characterized by loss of autonomy and independence, and the patient is unable to manage self-care, nutrition, hygiene and communication. Death usually comes after ten to 15 years of evolution of the disease, as a complication of clinical comorbidities or infections in individuals who have become progressively weakened by this chronic disease[8].

As for verbal communication, there is also the division into three phases, depending on the level of language impairment. In the early stages, although the patient with AD retains vocabulary knowledge and syntactic processing, he/she presents semantic-lexical problems similar to a semantic aphasia, and semantic-discursive difficulties in the interpretation of metaphors and proverbs, in moral comprehension of stories and humorous material. In the middle stages, there is worsening of these alterations, with the emergence of violation of conversational rules, loss of the epilinguistic function (self-correcting), and the beginning of phonological and syntactic deficits, which may lead to alterations similar to those found in Wernicke's aphasia or transcortical sensory aphasia[9].

Most linguistic studies involving patients with AD initially investigated changes in the lexical-semantic processing, especially in lexical access. Although there is agreement about the existence of lexical-semantic difficulties in individuals with AD[10] and other dementia, there is still no consensus about the nature of these deficits. These difficulties may be related to the deterioration in the "semantic inventory", or may be interpreted as access failure to this inventory, related to attentional and executive processes. To these investigations, studies are gradually added, describing semantic, syntactic and discourse alterations in both oral and graphical communication[7].

Thus, regarding the speech-language pathology aspects, the earlier the diagnosis of dementia and the beginning of treatment, the best the results obtained, because the patient can maintain a higher cognitive and functional level. This will also allow the patient to remain independent for a longer period of time, avoiding even greater burdens to their families[11].

The neuropsychological instrument used in this study, the Montreal Communication Evaluation Battery – MAC Battery, is the version of the original Canadian instrument *Protocole Montréal d'Evaluation de la Communication – Protocole MEC*[12], which assesses four components of the communicative processing of activation of the right brain hemisphere: discursive, pragmatic-inferential, lexical-semantic and prosodic[12]. The MAC Battery is composed by the following tasks: conversational speech, interpretation of metaphors, free lexical retrieval, lexical retrieval with orthographic criterion, lexical retrieval with semantic criterion, comprehension and repetition of linguistic prosody, narrative discourse, comprehension, repetition and production of emotional prosody, interpretation of indirect speech acts, and semantic judgment, besides a questionnaire designed to verify the awareness of the difficulties acquired after brain injury[13].

This instrument is sensitive to the examination of language deficits in individuals who have acquired right hemisphere (RH) lesion[13,14]. However, it is important to emphasize that several neurological conditions may lead to an acquired RH disorder, although vascular injury or stroke is the most common. Thus, there are other focal lesions that do not have vascular origin and can affect the right hemisphere, for instance, the insidious onset of a neurodegenerative disease such as Alzheimer's dementia[13,14].

Hence, this study had the aim to identify language alterations in a group of elderly patients with dementia in the tasks of free, semantic and orthographic lexical retrieval, narrative discourse, and interpretation of metaphors of the MAC Battery, and to verify the frequency of deficits in the cases evaluated.

METHODS

The research was conducted at the Ambulatory of Movement Disorders and Dementia of the *Hospital Santa Clara* of the *Irmandade Santa Casa de Misericórdia de Porto Alegre* (ISCMPA). It was carried out with the free and voluntary participation of the patients, after themselves and their responsible relative or caregiver signed the Free and Informed Consent Form, and had the approval of the Research Ethics Committee of the *Universidade Federal de Ciências da Saúde de Porto Alegre* – UFCSPA (number 1037/2010).

As this research had the aim to identify language deficits in different dementia diagnoses by applying the MAC Battery tasks, the patients selected for this study scored 0.5 (questionable dementia), 1.0 (mild dementia) and 2.0 (mild dementia) on the Clinical Dementia Rating (CDR)[15]. They were all monitored at the Ambulatory of Movement Disorders and Dementia, and had the probable diagnosis of dementia, according to the DSM-IV and the NINCDS-ADRDA criteria, after exclusion of individuals with psychiatric disorders. These diagnoses were established by neurological assessment performed by the medical team of the Ambulatory. Patients were invited to undergo a language assessment, which used the following MAC Battery tasks: free lexical retrieval, lexical retrieval with orthographic criterion (letter P), lexical retrieval with semantic criterion (clothes/dress code), interpretation of metaphors, and narrative discourse.

Sample

Participants were 13 patients with mild to moderate dementia, most of them (nine) with probable diagnosis of Alzheimer disease, and the others still under investigation regarding the type of dementia. Concerning the dementia stage assessed by the CDR[15], eight patients scored CDR=0.5; four scored CDR= 1.0; and one scored CDR= 2.0.

The sample had seven male participants and six female participants, with ages between 59 and 88 years, and between zero and eight years of formal education. In the Mini Mental State Examination (MMSE), the mean score was 21.30 points.

Procedures

The patients who participated in the research were initially cared for by medical team of the Ambulatory of Movement Disorders and Dementia of the *Hospital Santa Clara* of the ISCMPA, and then referred to the language assessment, according to the disease course. This routine occurred from May to August 2010, and the complete assessment was accomplished in a single section by senior Speech-Language Pathology and Audiology student from the UFCSPA.

In addition to considering the CDR[15] score between 0.5 and 2.0 as inclusion criteria, we also tried to establish subjects' performance on the Mini Mental State Examination (MMSE). This instrument allows a useful and practical cognitive assessment in the investigation of patients at risk for dementia, such as elderly patients. The scale also presents 84% of sensitivity and 60% of specificity when the traditional cut-off 23/24 is used in a sample of elderly patients from mental health clinics. However the MMSE scores are significantly influenced by the age and the educational level of the individual, suggesting the need to use different cut-offs according to the educational level. This differentiation, considering age, revealed that the 19/20 cut-off is more suitable for the diagnosis of dementia in the case of elderly without formal education, and the 23/24 cut-off, for elderly with some school instruction[17].

To apply the MAC Battery tasks the following order was observed for all the participants: free lexical retrieval, lexical retrieval with orthographic criterion, lexical retrieval with semantic criterion, metaphors interpretation, and narrative discourse. The lexical retrieval tasks have the aim to evaluate the exploration capacity of the lexical-semantic memory, as well as to assess some components of the executive function, such as planning, verbal initiative and cognitive flexibility. Three modalities of lexical retrieval, or verbal fluency, are part of the MAC Battery. In the Free Lexical Retrieval, there is no pre-established criterion to search the words, which must be said out loud during 150 seconds. In the Lexical Retrieval with Orthographic Criterion, the words must start with the letter P (two minutes of duration), while in the Lexical Retrieval with Semantic Criterion, they must belong to the clothes/dress code category (two minutes).

The Metaphors Interpretation task evaluates the ability to interpret the figurative or non-literal sense of metaphoric sentences. Initially, the participant explains what he/she understands from the sentence shown, and then chooses which option, among three, better explains the sentence.

Divided into three parts, the Narrative Discourse task is examined from the results set. In the first part, Partial Retelling of the Story, the ability to store and comprehend the complex linguistic material is evaluated paragraph by paragraph, as well as the production of a qualitative and quantitative narrative discourse (discursive and mnemonic linguistic abilities)[14]. After that, the Full Story Retelling assesses the abilities to summarize and to infer information after listening the reading of the five paragraphs of the story, without interruption. Finally, text comprehension is assessed by title given to the story, and the answers given to interpretation questions asked orally.

Statiscal analysis

Data from the group of patients with dementia were descriptively and inferentially analyzed regarding mean and standard deviation. Initially, the mean performance on the MAC Battery tasks, using the raw scores, were compared to the normative data from the neuropsychological instrument[14] (reference value and standard deviation) through the Student's t test, with significance level of $p \leq 0.05$. Finally, the standard score (Z score) was calculated based on the raw score of each participant in the tasks, according to the age and the education level of the correspondent normative group, in order to verify the frequency of deficits. The tasks in which the Z scores were less or equal to -1.5 standard deviation[18] were considered deficient.

RESULTS

Thirteen patients with dementia took part in this study, seven male and six female. The socio-demographic and clinical characteristics are shown in Table 1.

Table 1. Sociodemographic and clinical characterization of the group of subjects with dementia

Characteristics	Mean	SD
Age (years)	75.38	9.51
Educational level (years)	5.00	2.71
MMSE score	21.30	6.77

Note: MMSE = Mini Mental State Examination; SD = standard deviation

The group of elderly with dementia in this study showed low education levels (Table 1). Moreover, no differences were observed between genders regarding age, education level and performance on the MMSE.

The performance of the group of patients in all tasks can be seen on Table 2. The comparison of means and standard deviations obtained on the MAC Battery tests used the suggested parameters for adults between 60 and 75 years of age and with two to seven years of formal education.

It is observed that the groups of patients with dementia showed, in average, a poor performance in all MAC Battery tasks used in the assessment, with significant difference (Table

Table 2. Performances of the group of patients with dementia and the group of normative reference, according to mean age and educational level, in the MAC Battery tasks

MAC Battery tasks	Mean - patients assessed	SD - patients assessed	Mean - MAC Battery	SD - MAC Battery	p-value
Free lexical retrieval	12.61	9.39	31.46	14.40	0.000
Lexical retrieval with orthographic criterion	7.46	4.55	16.46	6.26	0.000
Lexical retrieval with semantic criterion	8.69	4.32	18.28	13.00	0.003
Interpretation of metaphors	22.53	9.43	27.14	5.35	0.000
Narrative discourse – partial retelling of the story – essential information	1.36	0.92	10.48	3.76	0.000
Narrative discourse – partial retelling of the story – present information	2.72	1.55	14.50	5.24	0.000
Narrative discourse – full retelling of the story	3.72	3.74	7.30	3.21	0.000

Note: SD = standard deviation

2). Moreover, the mean deficit in the group with dementia was higher for the variables lexical retrieval (all three modalities), the partial and the full narrative discourses (p≤0.001).

In addition to the performance analysis of the group of patients with dementia, an analysis of the occurrence of deficits in the MAC Battery tasks is shown case by case, in comparison to the normative data. The frequency of deficits can be found in Table 3.

Table 3. Frequence of deficits in the MAC Battery tasks for patients with dementia

MAC Battery tasks	Deficits (%)
Free lexical retrieval	30.77
Lexical retrieval with orthographic criterion	69.23
Lexical retrieval with semantic criterion	69.23
Interpretation of metaphors	35.46
Narrative discourse – partial retelling of the story – essential information*	100.00
Narrative discourse – partial retelling of the story – present information*	100.00
Narrative discourse – full retelling of the story*	45.45
Narrative discourse – text comprehension*	18.18

* Frequency calculated over tem patients who responded to the task

Participants presented higher frequency of deficits, in descending order, in the tasks of partial retelling of the narrative discourse (essential and present information), followed by the tasks of lexical retrieval with orthographic and semantic criteria, and full retelling of the narrative discourse (Table 3). The individuals in the sample showed lower deficits in the tasks of free lexical retrieval and comprehension of the narrative discourse (questions).

Although the group with dementia showed deficits in all evaluated tasks, there were participants with performance within the expected in some of them. At least two adults with dementia had impaired performance in the tasks.

DISCUSSION

In this study, the group of patients with dementia presented language deficits in all five tasks performed from the MAC Battery. In the lexical retrieval task, it was possible to notice a greater number of responses in free fluency, followed by fluency with orthographic and semantic criteria. Patients with dementia usually present lower performance in tasks of phonological and semantic lexical retrieval, when compared to controls neurologically healthy, which suggests more executive difficulties when more inhibition ability is required, such as the restriction to words beginning with a specific letter or belonging to a specific semantic category[19].

The semantic aspects are the first impaired, in opposition to the syntactic and phonologic systems, that usually present problems along the course of the dementia[10]. However, the semantic verbal fluency requires greater activation of temporal lobe regions, and depends on the access and integrity of the semantic memory, which is a component of long-term memory that contains the permanent representation of our knowledge regarding objects, facts and concepts, as well as words and their meanings[20]. Thus, the activation of an initial sample leads to automatic activation related to semantic neighbors, with well-established search strategies, consistent with the organizational structure of the word. This search follows the same executive processes used by phonological fluency, such as initiative, efficient organization of verbal retrieval, word retrieval, and self-monitoring (inhibition of inappropriate responses and responses already produced to avoid perseverations). In the phonological fluency task, in which there is greater activation of the frontal lobe, the search process is less automatic and requires the creation of unusual strategies, primarily based on lexical representations, since generating words based on the orthographic criterion is unusual[10], which was not attested by the data presented. This difference may be related to the studied sample.

The increase in pre-semantic activation found in patients with AD has been studied[21,22]. These investigations give consistency to the hypothesis that the progressive deterioration

of semantic information might be triggered by the loss of the specific attributes of the stimulus, along with permanence of information regarding the semantic category (theory known as Bottom Up)[10]. That is, the increase in the pre-activation effect reflects a specific impairment of semantic attributes in a lower hierarchical level in the semantic network. Thus, as these attributes are lost, individuals do not have elements to differentiate items in a higher level. Hence, they act as if they were facing the same stimulus when they perform tasks of lexical decision with coordinate pairs (e.g. lion-tiger), which would result in increased activation[10], as noted in the results presented in this research for the task of semantic lexical retrieval, in which patients evoked words with coordinate pairs or associated with the brand of clothing, for example, when the word "underwear" was associated with a particular brand of this type of clothing.

Analyzing the group of items of the task of interpretation of metaphors, it was verified that the group of patients presented lowered performance in comparison to individuals in the normative group, without neurological impairment. However, it was easy for them to identify the figurative or non-literal part of methaphoric sentences with the use of hints, provided by alternatives.

With regards to the metaphor, there are several approaches on how the utterances of this nature are processed[23]. According to the pragmatic model, the comprehension of metaphors implies the analysis of the literal, the perception of inconsistency, and, finally, a new analysis for adjustment in the construction of the figurative sense through the application of pragmatic information[24]. Studies have suggested, however, that this conception is not appropriate, because there is no satisfactory evidence that the literal processing precedes the methaforic processing[23]. The absence of such evidence leads to the perspective of direct access[24], which implies that there is interaction between contextual information and lexical processes in the early stages of comprehension. Thus, only contextually compatible meanings would be accessed from the beginning of the process, with no difference between the processing of literal and figurative utterances, so that metaphor comprehension would not require greater cognitive effort than the comprehension of literal language resources[23]. However, this does not mean that researchers who advocate for the theory of direct access exclude the possibility that the processing of figurative language take longer than that of literal language, as it is the case of unfamiliar metaphors. From this perspective, what could lead to a longer processing of unfamiliar metaphors would be the difficulty of integrating the figurative sense with the context, and not the fact that one analyzes and rejects the literal meaning of the expression and then conducts the methaphoric analysis itself[23].

There is no evidence that metaphors are processed literally and then figuratively, which suggests a direct metaphorical processing[24]. Regardless the absence of literal processing, the processing of metaphors requires great cognitive effort in terms of needed cognitive resources of working memory for the construction of meaning.

As already strongly established in literature, working memory is extremely relevant in language processing[25], including

natural and underlying metaphors[24]. Regarding the processing of this cognitive and linguistic resource, the working memory system primarily performs the tasks of manipulation, retention, and simultaneous conceptual rearrangement of information[23]. Thus, depending on its degree of salience, that metaphor may require an activation capacity higher than that of working memory, which, in turn, would lead to the decrease of propagation between memory items, the decrease of processing speed, and the deterioration of senses that are supposed to be built[24].

Faced with dementia, it is known that the presence of memory impairment is essential for this diagnosis[9] and that working memory is the most affected in these clinical cases. This memory is related to the processing of short-term data, and is involved in many language processes[25] related to simultaneous operations, such as the comprehension of sentences and texts, tasks in which information must be manipulated, read and written[10]. Hence, the greater the progression of dementia, the more affected is the working memory involved in narrative processing and, in turn, the worse the performance in this task. Thus, it is possible to understand why in the present study the group of patients had impaired performance in narrative discourse tasks.

Regarding the processing of discourse, rather than being limited to phonological, syntactic and lexical-semantic abilities, it is assumed the participation of cognitive processes such as selection, comparison and synthesis of semantic components based on their relevance and considering contextual processing. Moreover, the conditions of discourse interpretation/production and inhibition of impulsive responses or associations, development of a discursive plan with search and testing of hypotheses about the meaning of the utterance are important. Therefore, before the analysis of the results in narrative discourse tasks, it was observed that individuals in the sample had significantly lower performance in the task of partial retelling of the story, in which all showed deficits, while in the full retelling of the story their performance was better. These results are consistent with the literature[24], which states that there are alteration in language reception, comprehension and storage.

Among the receptive language alterations found in clinical evaluations, it is emphasized the inability to synthesize and process the information provided by speech[11]. Studies regarding dichotic listening have found difficulties related to attencional aspects and specific difficulties in tasks involving the phonological loop of working memory. The difficulties are noted in the operation of overloaded information, whether by the number of data to be manipulated or the complexity of organization of responses[10].

Currently, based on studies with refined tests, difficulties in comprehension of complex sentences, such as non-canonical, sentences in the passive voice, and long sentences, are evident. Although this position has become widely accepted, the explanation of the problem are still controversial. Some authors have defended the idea that the difficulty is related to the effect of storage overload in short-term memory; others have admitted factors related to short-duration operations, such as the allocation of resources, under the responsibility of the central executive of working memory, and other multifactorial

disorders involving variables related to semantic aspects and processing effects[10].

In the comparison of the abilities of comprehension, memory and expression of the meaning of a long discursive text, the capacity to provide detailed information and to make linguistic and cognitive inferences to transform the explicit content of the text in a more global level of meaning can also be affected in individuals with mild cognitive decline[26]. This difficulty to provide detailed information was evidenced in the performance on the narrative discourse task of the MAC Battery, when there was a greater deficit in understanding and narrating details of the story paragraph by paragraph than in the full retelling of the text.

Compared to subjects without neurological disorders, subjects with AD and other dementia produce fewer textual components than control subjects, both in the production supported by images (single picture and sequence of pictures) and without visual support. They have more errors on the report of sequence of events, and produce more irrelevant propositions, even when they have the support of images[10]. Along with the decrease of content and efficacy in the formulations (target propositions divided by the total) it is observed a lack of reference specifications. These findings suggest evidences of difficulties in semantic information processing of language beyond the mnemonic processing[27].

When compared to the scores of subjects without neurological damage, with the same education level and age, in the MAC Battery, the patients in this study presented good performance in text comprehension tasks. In the answers to questions about the text, they could contest each answer offering, mostly, responses consistent with the narrative. When asked to give a title to the text (before and after the 12 questions were asked), they were able to provide, in most cases, a title appropriate to the situation outlined in the text.

Patients with dementia have early complaints regarding memory loss. Many studies have suggested the involvement of working memory, especially of the phonological loop and the central executive, in several aspects of language processing, such as speech production, reading, and vocabulary acquisition[28]. Likewise, good linguistic performance depends on the preservation of cognitive functions such as memory and attention[7].

Although the altered language tasks identified in this study probably depend on the memory subsystems, particularly working memory/phonological loop and the so called semantic memory or semantic buffer[7], to be properly conducted, the language assessment allowed the verification of alterations in language processing already in the early stages of the disease, with losses in discursive, lexical-semantic and pragmatic-inferential communicative processing. It was also observed that patients had difficulties when asked to formally evoke words and in the task to comprehend narrative discourse, even though they provided detailed information and carried out linguistic and cognitive inferences.

One of the main controversies in the study of language in cases of dementia refers to the loss of semantic knowledge or difficulty of access lexical knowledge. Although different opinions coexist, explanations have been proposed about the possibility that both conditions converge. In this sense, working memory studies presented to date contribute decisively to the understanding of the relationship with both central executive and phonological loop dysfunctions. It is noteworthy that the discussion has not been exhausted, and has deployed in many of the investigations identified as future "trends"[10].

It is imperative to emphasize that the findings must be contextualized. These are preliminary data, because it involved a small group consisting of a limited number of cases, due to a significant rate exclusion of patients, considering that many sought medical care in later stages of the disease.

However, even as a preliminary study, it points out the need for continuity, given the aging population and the demands for language assessment as part of the diagnosis process of dementia. Thus, it is suggested the conduction of a longitudinal follow-up at the Ambulatory. It is plausible that, when a larger number of patients with early to moderate stages of dementia is compared, language deficits not present in this study are identified.

It is known that language deficits commonly evidenced in patients with dementia affect the communicative activity, generating, mostly, isolation and increased risk of early institutionalization. For this reason, we highlight the importance of early identification of linguistic alterations through standardized and sensitive instruments for this clinical population, such as the MAC Battery, which assesses the functionality of language. We also suggest further studies that relate linguistic, mnemonic and executive processing.

CONCLUSION

In this study, it was possible to identify language alterations through the application of MAC Battery tasks in a group of patients with early stages of dementia. It is believed that the early conduction of language assessment using instruments adapted to the population, its educational level and age, such as the MAC Battery, may contribute to further understanding the language and cognitive abilities altered in these patients, providing guidelines to think about intervention.

RESUMO

Objetivo: Identificar as alterações de linguagem em um grupo de pacientes idosos portadores de demência nas tarefas de evocação lexical livre, com critério ortográfico e com critério semântico, interpretação de metáforas e discurso narrativo da Bateria Montreal de Avaliação da Comunicação – Bateria MAC, bem como, verificar a frequência de déficits. **Métodos:** Participaram do estudo 13 pacientes com demência de grau leve a moderada, atendidos no Setor de Neurologia do Ambulatório de Distúrbios do Movimento e Demências do Hospital Santa Clara da Irmandade Santa Casa de Misericórdia de Porto Alegre (ISCMPA). O instrumento neuropsicológico de avaliação foi a Bateria MAC e a aplicação das tarefas seguiu a seguinte ordem: evocação lexical livre, evocação lexical com critério ortográfico, evocação lexical com critério semântico, interpretação de metáforas e discurso narrativo. **Resultados:** O grupo de pacientes com demência apresentou desempenho deficitário em todas as tarefas da Bateria MAC que foram avaliadas, com diferença significativa. Além disso, os participantes apresentaram maior frequência de déficits, em ordem decrescente, nas tarefas de reconto parcial do discurso narrativo (informações essenciais e presentes), seguidas pelas tarefas de evocação lexical com critério ortográfico e com critério semântico, e reconto integral do discurso narrativo. Pelo menos dois pacientes apresentaram alterações de desempenho em alguma das cinco tarefas realizadas da Bateria MAC. **Conclusão:** A avaliação de linguagem através da Bateria MAC permitiu a verificação de alterações do processamento linguístico em idosos com demência, o que caracteriza que tal instrumento também é aplicável para esta população clínica.

Descritores: Comunicação; Linguagem; Avaliação; Demência; Doença de Alzheimer

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