Profile of communication in hospitalized adults and elderly

Perfil da comunicação em adultos e idosos hospitalizados

Perfil de comunicación en adultos y adultos mayores hospitalizado

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Abstract

Introduction: *Language changes are often caused by chronic diseases interfering directly in the individual communication.* ***Objective:*** *to characterize communication by age and education of hospitalized adult and elderly patients and relate the results of the Boston subtests used.* ***Methods:*** *The study included 30 individuals, adults and elderly of both sexes, hospitalized in the Medical Clinic of a second-level Regional Hospital. The study excluded patients with lowered level of consciousness, mental illness, using tranquilizers and infectious diseases. The research included the application of an initial anamnesis, analysis of medical records and application of the oral comprehension and emission of the Boston test. The results were expressed in absolute and relative terms and for statistical analysis were used the equal proportion and correlation Pearson's test.* ***Results:*** *The participants included 13 adults (43.3%) and 17 elderly (56.7%) with a median of 1.5 years of study. The worst performances were in the tests of auditory discrimination, complex ideational material, body-part identification, denomination and denomination by visual confrontation. There was no significant difference between results using normative values for age or education. There was a correlation between the results of auditory discrimination and body-parts*

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identification; auditory discrimination and complex ideational materials; commands and body-part identification; nonverbal and verbal agility; repetition of words and phrases and auditory discrimination and denomination by visual confrontation. ***Conclusion:*** *The tests in which the hospitalized patients of the study presented more difficulty involved oral discrimination and semantic access.*

Keywords: *Language; Speech, Language and Hearing Sciences; Elderly; Adults; Hospitalized Patients.*

Resumo

Introdução: *Alterações de linguagem são frequentemente ocasionadas por doenças crônicas, interferindo diretamente na comunicação do indivíduo.* ***Objetivo:*** *caracterizar a comunicação de pacientes adultos e idosos hospitalizados e correlacionar os resultados dos subtestes da prova de Boston utilizados.* ***Método:*** *Participaram do estudo 30 indivíduos, adultos e idosos, de ambos os sexos, internados na enfermaria de Clínica Médica de um Hospital Regional de nível secundário. Foram excluídos da pesquisa os pacientes com nível de consciência rebaixado, doenças psíquicas, em uso de calmantes e com doenças infectocontagiosas. A pesquisa incluiu a aplicação de uma anamnese inicial, consulta ao prontuário médico e aplicação das provas de compreensão e emissão oral do teste de Boston. Os resultados foram expressos de forma absoluta e relativa e para análise estatística foram utilizados os testes de igualdade de proporções e a correlação de Pearson.* ***Resultados:*** *Participaram 13 adultos (43,3%) e 17 idosos (56,7%) com mediana de anos estudados de 1,5. Os piores desempenhos foram nas provas de discriminação auditiva, material ideacional complexo, identificação de partes do corpo, denominação e denominação por confrontação visual. Não houve diferença significante entre os achados utilizando valores normativos para idade ou escolaridade. Observou-se correlação entre os resultados de discriminação auditiva e identificação de partes do corpo; discriminação auditiva e material ideacional complexo; ordens e identificação de partes do corpo; agilidade oral e verbal; repetição de palavras e frases e discriminação auditiva e denominação por confrontação visual.* ***Conclusão:*** *As provas nas quais os pacientes hospitalizados do estudo apresentaram mais dificuldade envolviam compreensão auditiva e acesso semântico.*

Palavras-chave: *Linguagem; Fonoaudiologia; Idoso; Adulto; Pacientes internados.*

Resumen

Introducción: *Trastornos del lenguaje son frecuentemente causados por enfermedades crónicas que interfieren directamente con la comunicación del individuo.* ***Objetivo****: Caracterizar la comunicación de pacientes adultos e adultos mayores hospitalizados y correlacionar los resultados de la sub-prueba de Boston utilizados.* ***Métodos****: Participaron 30 personas adultas e adultas mayores, de ambos los sexos ingresados en la enfermería médica de un Hospital Regional. Fueron excluidos de la investigación los pacientes con un nivel reducido de conciencia, enfermedades psíquicas, en uso de tranquilizantes y con enfermedades infectocontagiosas. Se hizo una anamnesis inicial, análisis de las historias clínicas y aplicación de las pruebas de comprensión y emisión oral de la prueba de Boston. Los resultados se expresaron de forma absoluta y relativa y para el análisis estadístico se utilizaron las pruebas de igualdad y de proporciones y la correlación de Pearson.* ***Resultados****: Participaron 13 adultos (43,3%) y 17 adultos mayores (56,7%) con una mediana de años estudiados de 1,5. Los peores resultados fueron en las pruebas de discriminación auditiva, material con ideas complejas, identificación de partes del cuerpo, denominación y denominación por confrontación visual. No hubo diferencias significativas en los hallazgos que utilizaron valores normativos para la edad o la educación. Se observó una correlación entre los resultados de discriminación auditiva y identificación de partes del cuerpo; discriminación auditiva y material con ideas complejas; órdenes y identificación de partes del cuerpo; agilidad oral y verbal; repetición de palabras y frases y discriminación auditiva y denominación por confrontación visual.* ***Conclusión****: La pruebas en las que los pacientes hospitalizados del estudio presentaron más dificultad involucraron comprensión auditiva y acceso semántico.*

Palabras claves: *Lenguaje; Fonoaudiología; Adulto; Anciano; Pacientes internos.*

Introduction

Language is an extremely complex faculty that enables humans to code, develop and communicate their thoughts and experiences through the use of arbitrary symbols. The function of the neurological networks involved in language and their interactions with other neurocognitive networks depend on ordered interconnections[1].

Some pathologies can affect brain structures involved in language and adjacent networks, such as Vascular Brain Accident (stroke), Traumatic Brain Injury (TBI) and brain tumors[2,3], as well as degenerative diseases, toxic conditions, demyelinating disorders and infectious diseases[4].

Among the changes caused by these injuries or brain disorders are motor and language disorders, being aphasia one of the most common disorders, which compromise the oral and written language in its phonetic, phonological, morphosyntactic, semantic and pragmatic aspects[5].

The auditory and visual comprehension, verbal fluency, reading skills and language-cognitive aspects such as memory, attention and logical reasoning are also affected, interfering with all the individual's communication[6], since aphasia affects mainly adults and the elderly, with these linguistic functions already developed[4]. Several studies with aphasic patients and their families describe communication and language as the domain that affects the most the quality of life and the interactions of these individuals daily [7,8,9,10].

In Brazil, as in many countries, there has been an increase in life expectancy. Based on the projection of the Brazilian population, in 2050, the country will reach the range of 64 million inhabitants over 60 years old and about 22 million people aged 70 or more, a difference of more than 15 million elderly people regarding the adolescent and child population[11].

With this increased life expectancy, there is an increase in chronic and degenerative diseases. In Brazil, studies show that individuals with more than 75 years present, on average, 3.5 chronic diseases[12].

In this context, the language evaluation in adults and elderly needs to contemplate the language and cognitive skills[6], considering within this evaluation process, the influence of variables such as gender, education and age[13].

As a formal assessment of language in adults and elderly in Brazil, the most widely used tests are the Montreal Toulouse battery, the Boston Diagnostic Aphasia Examination (BDAE) and the M1-Alpha[14].

The BDAE protocol is the most internationally used for detecting aphasia and is adapted and standardized for the Brazilian population[15,16]. This evaluation allows checking the performance in fluency, comprehension and repetition tests, as well as oral expression and reading[6].

This study aimed to evaluate the communication (oral expression and comprehension) and brings the discussion about the importance of the completion of the evaluation of communication in hospitalized individuals, regardless of the reason and length of stay. The hypothesis of this research is that many hospitalized patients present a change of communication, either in expression or comprehension of language and that there is a greater number of people with changes when using the normality criteria by education than using the criteria for age.

Given the above, the objective of this research was to characterize the communication of hospitalized adult and elderly patients and to correlate the results of the Boston proof of subtests used.

Methods

This study was approved by the Research Ethics Committee (CAAE 29046414.0.0000.5546) and followed the resolution of the CONEP 496/12. This is a cross-sectional descriptive study. The sample consisted of adult and elderly patients (above 21 years old), of both sexes, hospitalized in the Infirmary of Medical Clinic of a Regional Hospital for more than 24 hours, which agreed to participate and signed the consent form. Patients were randomly selected, regardless of the reasons for hospitalization.

Were excluded of the research individuals with the lowered level of consciousness, who presented diseases that prevented the application of the test or with difficulty in responding questions orally; patients who were sedated, or using sedative drugs up to 4 hours before the test, patients in isolation environment due to infectious diseases, individuals who were discharged before testing the application and refused or have given up the research.

An initial interview with collecting general data of identification and characterization of the patient, such as sex, age, education, profession, origin, reason for hospitalization, medical diagnosis,

pre-existing diseases and medication use, followed by the partial application of the Boston language test for the diagnosis of aphasias (BDAE), namely, evidence of auditory comprehension, oral expression and proof of fluency in controlled association. Listening comprehension with evidence of auditory discrimination, identification of parts of the body, commands, ideational complex material and oral expression using the evidence of oral agility (verbal and nonverbal), automated sequences, recitation and singing, repetition of words and phrases, denomination (semantic auditory input and semantics clue), denomination by visual confrontation and denomination of animals were assessed. All subtests that involved reading and writing were excluded, so that, in all participants (literate or not) the same tests could be carried out. It should be noted that the test application goal was not to make a diagnosis of aphasic syndrome but getting results concerning the oral communication of research participants.

Were recorded and scored the responses according to the instruction of the authors of the test[15]. It was used for comparison with the results of the Average and standard deviation values found in the study of normative data for Brazilian population[16] both for age and education of the research subjects.

The results were tabulated in Excel (Microsoft® Office package) for descriptive data analysis and processed by the statistical program STATA 10.0 for Windows. We used the test of equal proportions and the Pearson correlation test. It was stipulated the level of significance in 5% (p value <0.05). The r values (Pearson coefficient) that were below 0.30 were considered as evidence of low correlation, between 0.41 and 0.59 as moderate correlation, and greater than 0.7 were considered as strong correlation.

Results

The study included 30 patients, 17 (57%) were male and 13 patients (43%) were female, aged between 24 and 86 years old (Median ± SD = 57 ± 15.9 years old). Eight (26.6%) participants were in the age range of 24 to 45 years old, 11 (36.7%) were between 46 and 59 years and 11 (36.7%) were elderly, aged between 60 and 86 years. Regarding education, the median number of years studied was 1.5 years of schooling (S.D. ± 3.8). Of these, eight (26.7%) were illiterate, 19 (63.3%) had primary education incomplete, two (6.7%) finished high school and one (3.3%) completed the Higher Education.

Regarding the pre-existing diseases of the research participants, it was noted the presence of systemic arterial hypertension (SAH) in 16 participants (53.3%), 13 (43.3%) presented diabetes mellitus (DM), two (6.7%) with heart diseases, two (6.7%) with carcinoma and one (3.3%) with epilepsy.

Regarding the causes of hospitalization, six participants (20%) presented neurological causes (suspected stroke, neuropathy and headache) and 24 (80%) non-neurological causes (pneumonia, hypertension, urinary tract infection, colorectal carcinoma, renal calculi, gallstones, dehydration, productive cough, thrombosis, tuberculosis, decompensated MD, member injury and infections, dizziness, abdominal pain, heart disease, respiratory distress, hypogastric pain, diffuse abdominal pain, and fever).

Table 1 illustrates the results obtained in Boston test for diagnosis of aphasia in the tests of oral comprehension, oral agility, repetition and naming. It was found that there was no difference between the proportion of the number of people below the reference values used when the criteria by age or education (p> 0.05 for all evaluated subtests).

In the oral comprehension tests, the Pearson test showed moderate correlation between the results of auditory discrimination and body parts identification (r = 0.4; p <0.05), between auditory discrimination and ideational material complex (r = 0, 4; p <0.05) and between the task commands and body parts identification (r = 0.5; p <0.05).

Regarding the subtests assessing oral expression, it was clear the moderate correlation between the evidence of verbal and non-verbal agility (r = 0.53; p <0.05). There was no significant correlation to relate the evidence of automated sequence with the recitation and singing ones.

Statistical results also indicated moderate correlation between the results obtained in the repetition of words and phrases (r = 0.4; p <0.05). In relation to the tests involving denomination (with auditory input and semantic clue, by visual confrontation and animals), it was observed that the results were not significantly correlated (denomination versus denomination by visual confrontation, r = 0.07, p> 0.05; denomination versus animal denomination, r = 0.1, p> 0.05 and denomination by

visual confrontation versus animal denomination, r = 0.1, p> 0.05).

It has been found also a strong correlation between the tests of auditory discrimination and denomination by visual confrontation (r = 0.8; p <0.01) and moderate correlation between the results of auditory discrimination and repetition of words and phrases (r = 0 4; p <0.05 and r = 0.5; p <0.01).

Table 1. Comparison between the number of patients with changes in different evidences of the Boston test using the criteria of age and education.

Subtest	Possible Score	Average and Standard Deviation of the Participants	Number of altered patients by age	Number of altered patients by education	Value of p-value*
Oral Comprehension					
Auditory discrimination	74	55,3 ± 13,01	23	17	0,10
Body parts identification	38	16,01 ± 3,11	18	19	0,79
Commands	15	13,6 ± 2,19	7	7	1,00
Ideational Complex Material	12	7,33 ± 2,48	20	17	0,43
Oral agility					
Nonverbal oral agility	12	8,4 ± 2,53	11	05	0,08
Verbal oral agility	14	10,8 ± 2,21	11	8	0,40
Automated sequences	8	6,7 ± 1,17	13	14	0,79
Recitation, singing	4	2,63 ±1,43	6	5	0,74
Repetition					
Repetition of words	10	9,2 ± 1,21	8	9	0,77
Repetition of sentences	16	8,63 ± 1,63	3	4	0,69
Denomination					
Denomination	27	22,3 ± 5,06	18	17	0,79
Denomination by visual confrontation	114	85,76 ±30,21	21	21	1,00
Denomination of animals	-	14,9 ± 6,75	11	8	0,40

Subtitle: * Test of equal proportions between the number of individuals with alterations when used the reference values for education compared with the reference for age. P value significant when <0.05. The symbol - indicates no expected values and may vary among the population. Note: the normal standards by age and education were taken from Radanovic, Mansur and Scaff, 2004[12].

Discussion

This study aimed to characterize the communication (oral expression and comprehension) of hospitalized adult elderly patients and brings the discussion about the importance of the completion of the evaluation of communication in hospitalized individuals, regardless of the reason and length of stay.

Regarding the health of the elderly, there are several points that deserve highlights. On the one hand, the aging process as a progressive decrease of functional reserve, called senescence, and the other, the development of pathological conditions caused by emotional stress, injury or chronic diseases, called senility. Both in the senescence and in senility, the follow up with health professionals becomes indispensable[17].

The rise of chronic no communicable diseases, resulting from an aging population, shows a large number of illnesses among adults and the elderly, and hence, greater incidence of hospitalizations, which makes them susceptible to various risk factors, further aggravating social and biological conditions, even with the effectiveness of the etiological treatment within hospital institutions[18].

Another important factor that should be considered is the education of the population. It is known that until a few years ago, the study, in addition to not being socially valued, was difficult, both for men and women, since men left home very early to sustain the family, and women shared their duties

between working in the fields and caring about the house and children, reflecting the low level of schooling among elderly[19]. In our study, the median of years studied was 1.5 years old, being 90% with low education or illiterate individuals.

The data presented agree with the Ministry of Health, in which 23% (253.814 inhabitants) of the adult and elderly population in the state of Sergipe (over 24 years old) are illiterate. In the Health region of Lagarto, research site (Lagarto, Poço Verde, Riachão do Dantas, Salgado, Simão Dias e Tobias Barreto) this rate is 26% (46,658 inhabitants) in individuals older than 25 years old[20].

Studies report that more educated individuals achieve better performances in language tests, even taking into account cultural characteristics and access to information[13]. In addition, the low level of education, when associated with poor economic conditions and the difficulty of access to the support network, can cause difficulties in self-care and management of health problems for the elderly and their families, leading to institutionalization[21].

It is known that language processing depends on the skills such as attention, memory and executive functions to ensure good linguistic performance[6] and it is discussed in the literature the influence of age and education in this performance.

Thus, to eliminate confusion regarding the difference between education and age of the participants, were also compared to the average and standard deviation for age the ones for education, according to results of another study[16].

Although the cause of hospitalization has varied widely among participants, regarding the pre-existing diseases in hospitalized patients in the medical clinic, 53.3% of participants reported having hypertension, 43.3% reported having diabetes mellitus, 6.7 % mentioned heart disease, 10% presented other pathologies. These findings are consistent with the area literature[22,23].

It draws attention, in the results, the percentage of individuals diagnosed with hypertension and diabetes. In Sergipe, according to IBGE, these morbidities rates are lower than those found in this study, being reported that 20.7% of Sergipe population have been diagnosed with hypertension and 6% with diabetes[20]. This discrepancy can be explained by the high frequency of chronic diseases in hospitalized individuals.

This higher rate found in this study can be justified also because the research was carried out in an infirmary of the Medical Clinic, where these morbidities are common. However, this fact does not minimize the data and the importance of Health Education actions focused on health promotion and disease prevention.

In this study, 36.7% of subjects (11 people) were elderly and the most frequent pre-existing disease in this population was hypertension, present in 72.7% of the elderly (8), which indicates the high rate of chronic diseases in populations of hospitalized elderly. Some authors describe the prevalence of hospitalizations for diseases or complications of hypertension in elderly patients aged equal or higher than 60 years old [24,25]. This result alerts the need for greater attention and follow-up of these patients in the primary care network, avoiding, thus, hospitalization.

In Brazil, the stroke represents about 80% of the acquired disabilities and arterial hypertension is the most important risk factor for cerebrovascular disease, the estimated prevalence is around 11% to 20% over 20 years old and 35% above 50 years old[19], being the most frequent sequelae, the aphasias[3].

Regarding hospitalization causes found in this study, the most frequent disorders did not present neurological origin. In a study conducted in Rio de Janeiro with 7,584 hospitalized patients, it was found that the main causes of hospitalization were cardiovascular diseases, followed by eye and attachments diseases, digestive system diseases, genitourinary system diseases, neoplastic and breathing apparatus diseases[23].

The length of stay was not reported in this study because it presented transversal characteristic, however, in the medical clinic where the research was carried out, the research called for a maximum length of stay of seven days.

In this context, it is highlighted the importance of multidisciplinary approach to holistic understanding of the patients within their biopsychosocial context. The Speech, Language and Hearing Sciences evaluation and intervention in hospitals aim the early diagnosis and the necessary referrals, acting in preventing clinical aggravations arising from the Speech, Language and Hearing Sciences manifestations detected, enabling the reduction of the hospital stay period[26].

Regarding the performance of patients in language skills, through evidence of BDAE, the largest number of patients with scores lower than expected

occurred in tests of auditory discrimination, ideational complex material, identification of body parts and denomination by visual confrontation, all featuring over 50% of the sample with lower scores than those found in another study[16], both for age and education.

In the subtests of auditory discrimination, denomination and identification of body parts the results can be explained by engaging semantic categories generally learned in the school environment, such as geometric shapes and detailed identification of body parts[15] and by the fact that most of our sample was composed by individuals with low education.

In the task of understanding complex ideational material, it is required, in addition to complex semantic relations, understanding, retention and retrieval of information contained in the message[15,27].

To check the possible difference between the results by age and educational level, it was applied the equal proportions test that showed no differences between the results.

Another factor to be discussed is that the cutoff suggestions for different education levels do not consider individuals who have never attended school or are illiterate. What may have contributed to the high number of lower than expected cases and, mainly for this reason, the suggested cutoff points were not used by the authors.

The results of patients in tests of ideational complex material and auditory discrimination shown to be moderately correlated can be explained by the need for auditory discrimination for more complex oral comprehension.

The findings of oral agility, verbal and nonverbal, proved to be correlated. This subtest assists in the diagnosis of verbal or speech and non-verbal apraxia. A study[28] found an association between verbal and non-orofacial apraxia in 48% of the cases studied, which explains the findings of this study.

The denomination tests were not correlated. This can be explained by the difference between the tasks. In the denomination subtest, the evaluator offers, in addition to auditory input, a semantic clue. But in the evidence denomination tests by visual confrontation and denomination of animals (or semantic verbal Fluency), it is required access to semantic memory, but in the first, the evaluator shows a figure, meaning, there is a visual clue and, in the second, it is stipulated the semantic category, in case, the name of animals, but the access is free. So, all are tasks involving semantic access, but with different clues.

Finally, the tests of auditory discrimination and denomination by visual confrontation were strongly correlated. Certainly because the two subtests used the auditory comprehension and the same visual clues.

As for the influence of regionalism in the performance in the subtests, it is noteworthy that there were also considered the similar answers to those expected in the tests, since they existed in the Portuguese dictionary and they are synonymous, thereby minimizing the interference of cultural diversity.

In this study it is possible to observe the large number of adults and elderly hospitalized with changes in various fields of language, demonstrating the importance of multi-professional evaluations, regardless of the cause of hospitalization, enabling the development of intervention plans that minimize the limitations of the patient aiming at a better prognosis and quality of life after hospital discharge.

The main limitations of this study relate to compare adults and seniors and not just a specific age group; however, to minimize this limitation, normative values for age and education were used.

Conclusion

The studied sample was characterized by having the worst performance in tests of auditory discrimination, ideational complex material, identification of body parts, denomination (with auditory and semantic clue) and denomination by visual confrontation. These tests primarily involve auditory comprehension and semantic access. It was concluded that many hospitalized adult and elderly patients showed changes in communication, independent of the underlying disease that they presented and the criteria used, by age or education, to obtain the results between normal and abnormal. It was also observed a positive and significant correlation between the subtests that assess understanding and also among those that evaluate oral expression. However, studies should be conducted in order to find the normative values of the evidence used for the population of the state of Sergipe and, more specifically, the city of Lagarto.

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