

# CHARACTERISTICS OF PATIENTS ASSISTED AT AN AMBULATORY OF DEMENTIA FROM A UNIVERSITY HOSPITAL

Lyssandra dos Santos Tascone<sup>1</sup>, Rita de Cássia G. Marques<sup>1</sup>,  
Elaine Cristina Pereira<sup>1</sup>, Cássio M.C. Bottino<sup>2</sup>

**Abstract – Objective:** To present socio-demographic characteristics, mean scores of tests and scales applied to patients with dementia and discuss the relationship between test scores, clinical diagnoses and the severity of dementia. **Method:** Patients (n=113) were diagnosed according to the DSM-IV criteria, and the diagnostic work-up included physical and neurological examination, auxiliary exams, cognitive and functional tests, and the evaluation of neuropsychiatric symptoms. **Results:** Mean age was 74.0 years. Alzheimer's disease (AD) was diagnosed in 62.8% of the patients, AD and vascular dementia in 8.8%, other dementias in 14.2%, and mild cognitive impairment in 2.7%. At least one neuropsychiatric symptom was diagnosed in 96.9% of the sample. There were significant differences on cognitive and functional performance between the groups classified according to dementia severity. **Conclusion:** Neuropsychiatric symptoms were quite common in patients with dementia, being more frequent as severity increased, and those symptoms were associated with functional impairment in the patients.

**KEY WORDS:** dementia, Alzheimer's disease, vascular dementia, neuropsychiatric symptoms, activities of daily living.

## Perfil dos pacientes atendidos no ambulatório de demência de um hospital universitário

**Resumo – Objetivo:** Apresentar características demográficas, escores médios de testes e escalas aplicadas aos pacientes com demência e discutir a relação dos escores dos testes com os diagnósticos clínicos e a gravidade da demência. **Método:** Pacientes (n=113) foram diagnosticados segundo os critérios para demência do DSM-IV, avaliados com história clínica, exame físico, exames complementares e aplicação de testes cognitivos, funcionais e neuropsiquiátricos. **Resultados:** A idade média foi 74,0 anos. A doença de Alzheimer (DA) foi diagnosticada em 62,8% dos casos, DA e demência vascular em 8,8%, outras demências em 14,2%, e comprometimento cognitivo leve em 2,7%. Ao menos um sintoma neuropsiquiátrico foi diagnosticado em 96,9% da amostra. Houve diferenças significativas nos escores dos testes cognitivos e escalas funcionais entre os grupos classificados segundo a gravidade de demência. **Conclusão:** Sintomas neuropsiquiátricos são muito comuns, mais frequentes em casos graves, e estes sintomas estão associados ao comprometimento funcional nos pacientes com demência.

**PALAVRAS-CHAVE:** demência, doença de Alzheimer, demência vascular, sintomas neuropsiquiátricos, atividades de vida diária.

The elderly population has increased all over the world, especially in developing countries. The prediction is that, by 2025, Brazil will have become the sixth country in the world, taking into account the number of elderly<sup>1,2</sup>, and that they will represent 12.5% of the world's population<sup>3</sup>. With the increase of the elderly population, typical diseases in this age group become more frequent,

among which are degenerative and vascular dementia, with all their socio-economic implications<sup>2</sup>. In this age group, memory problems affect 50% of the individuals and 5 to 10% of them are dementia patients<sup>3</sup>.

The assistance to patients with cognitive disorder is often carried through at specialized clinics in university centers. This assistance enables the adequate etiolog-

Old Age Research Group (PROTER), Institute of Psychiatry, Medical School, University of São Paulo, São Paulo SP, Brazil: <sup>1</sup>Psychiatrist; <sup>2</sup>Coordinator. This research was supported by Novartis Bioscience.

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Dra. Lyssandra dos Santos Tascone – Old Age Research Group (PROTER) / Institute of Psychiatry / Medical School / University of São Paulo - Rua Ovidio Pires de Campos S/N - 05403-010 São Paulo SP - Brasil. E-mail: lyssandrasantos@ig.com.br

ic identification, which does not often occur at centers of primary care, favoring an early treatment of cases of degenerative or reversible causes and the improvement of knowledge through research.

The aim of this study is to present demographic characteristics and the scores of tests applied to patients assisted at the Ambulatory of Dementia of PROTER, and to discuss the relationship between the results of the tests with the etiologic diagnoses and the severity of the dementia.

## METHOD

The activities at the Ambulatory of Dementia of PROTER, at the Institute of Psychiatry of Old Age Research Group (PROTER), Institute of Psychiatry, Medical School, University of São Paulo, were initiated in February 2003. Records of patients assessed from February/2003 to June/2005 were analyzed. The patients who searched for the service spontaneously, complaining of forgetfulness, were sent from other services or took part in an Epidemiologic Study of Prevalence of Dementia carried out in São Paulo. The assessment consists of clinical data of history, neurological and physical exam, auxiliary tests and exams (laboratory and neuroimaging), in which the diagnosis of dementia and other mental disorders were made according to DSM-IV<sup>4</sup> criteria. The diagnosis of mild cognitive impairment (MCI) was made according to the criteria suggested by Petersen et al.<sup>5</sup>. The Brazilian versions of the following tests and scales were applied: Cambridge Cognitive Examination (CAMCOG) from the Cambridge Examination of Mental Disorders in the Elderly (CAMDEX)<sup>6,7</sup>, Mini-Mental State Examination (MMSE)<sup>8,9</sup>; to the informants, Neuropsychiatry Inventory (NPI)<sup>10,11</sup>, and Bayer Activities of Daily Living Scale (B-ADL)<sup>12</sup>. Patients were classified according to dementia severity, in 3 groups, based on the Clinical Dementia Rating Scale (CDR)<sup>13,14</sup>.

For two years and six months, 180 patients with memory complaints were assisted and studied. Out of the 180 patients, 113 had complete assessment with etiologic diagnosis, which will be presented next. The others remained under investigation until the moment of data analysis and were directed to other services or dismissed, as they did not present significant cognitive deficits which would justify their permanence in this specialized ambulatory.

For the data analysis, the SPSS 14.0 Windows program was used. Descriptive analysis (minimum, maximum, standard deviation), comparison of category frequencies with Qui-square and comparison of score averages of tests with Variance Analysis (ANOVA), or Kruskal-Walis non-parametric test, when appropriate, with comparison pos-hoc, corrected by Bonferroni's method were made. A linear regression was made, investigating the age effect, cognitive deficits and the presence of neuropsychiatric symptoms over the patients' functional capacity.

All participants in this study and their informants signed a voluntary and consent term of awareness, which was approved by the Ethics Commission for Analysis of Research Projects of Medical School, University of São Paulo.

## RESULTS

Demographic data of the sample (n=113) are presented in Table 1. The average age of the sample was 74.0 (extremes: 51–92; sd=7.6) and the score of MEEM was 16.9 (range: 2–30; sd=6.6).

The distribution of the frequency of diagnosis at the ambulatory is presented in Table 2. The diagnosis of other dementias comprises patients with vascular dementia (VD), Lewy body dementia, fronto-temporal dementia, Parkinson disease dementia, primary progressive aphasia, and dementia caused by other diseases (HIV, hypothyroidism and brain tumor+neurosurgery). The other diagnosis group comprises patients with vitamin B12 deficiency, disorder of alcohol dependence and delirious disorder without dementia.

Major depression constituted a comorbidity in 25 patients (22.1%) of this sample, 12 (48%) of whom were diagnosed with Alzheimer disease dementia (AD).

Analyzing the distribution of demographic data (gender, marital status and years of education) there was no statistically significant difference between the six diagnostic groups described in Table 2.

Dementia cases (n=97), 94 (96.9%), patients presented at least neuropsychiatric symptoms assessed by neuro-

Table 1. Demographic data.

Variable	Frequency	Percentage (%)
Gender		
Male	49	43.4
Female	64	56.6
Marital status		
Married	58	51.3
Divorced	11	9.2
Single	5	4.4
Widowed	39	34.5
Education		
Illiterate	15	13.3
1–4 years	61	54.0
5–8 years	16	14.2
≥9 years	21	18.6

Table 2. Frequency of diagnosis found at the ambulatory.

Diagnostic	Frequency	Percentage (%)
Alzheimer's disease (AD)	71	62.8
AD + Vascular dementia	10	8.8
Other dementias	16	14.2
Depression	9	8.0
Other diagnosis	4	3.5
Mild cognitive impairment (MCI)	3	2.7
Total	113	100

Table 3. Distribution of tests scores and scales according to disease severity.

	CDR 1 n=35	CDR 2 n=47	CDR 3 n=15	Statistic test and p value
	Mean (sd)	Mean (sd)	Mean (sd)	
MEEM	20.86 (3.51) <sup>a,b</sup>	14.43 (3.81) <sup>c</sup>	6.93 (2.96)	F=83.94; p<0.001
CAMCOG	67.09 (11.15) <sup>a,b</sup>	49.94 (13.94) <sup>c</sup>	18.17 (12.81)	F=66.54; p<0.001
NPI	20.17 (19.17) <sup>a,b</sup>	33.70 (19.78)	45.40 (18.56)	F=10.03; p<0.001
B-ADL	4.74 (2.13) <sup>a,b</sup>	7.89 (1.30) <sup>c</sup>	9.42 (0.46)	KW=55.52; p<0.001

sd, standard deviation; F, ANOVA test value; KW, Kruskal-Wallis test value; <sup>a</sup>CDR 1 vs CDR 2 – p<0.01; <sup>b</sup>CDR 1 vs. CDR 3 – p<0.01; <sup>c</sup>CDR 2 vs. CDR 3 – p<0.01

psychiatric symptoms (NPI). The 3 (3.1%) cases of dementia without neuropsychiatric symptoms presented diagnosis of Alzheimer disease.

A comparison between the average of the tests scores applied (MEEM, CAMCOG, NPI, B-ADL) with patients with dementia (n=97), was made, divided in 3 groups (AD, AD=VD and other dementias). The analysis of these data did not evidence a statistically significant difference in the tests scores. Only in relation to the neuropsychiatric symptoms, a trend was observed (p=0.09) in patients with AD, who present lower scores than the AD+DV and other dementias patients. The scores average in the NPI scale, according to the diagnosis, was 28 to the patients with AD; 33 to those classified in the AD+DV group; and 40.6 to patients in the other dementias group.

In the comparison between the severity of the disease (assessed by CDR) with the averages of scores applied (MEEM, CAMCOG, NPI, B-ADL) in patients with dementia, statistically significant differences (p<0.01) of groups classified according to CDR with MEEM, CAMCOG and NPI were observed. More serious cases (higher CDR score) presented lower scores in the MEEM and CAMCOG and higher in NPI and B-ADL (Table 3).

Finally, a linear regression was made, assessing the effect of cognition (MEEM), and the neuropsychiatric symptoms, over the functional impairment (B-ADL). The results show that, controlling the age effect, the functional impairment was significantly associated with cognition (MMSE) and with the neuropsychiatric symptoms, making it possible, with these variables, to explain 54.8% of the data variability ( $R^2=0.548$ ) (Table 4).

## DISCUSSION

It was observed female predominance in the patients assisted at PROTER's ambulatory of dementia (56.6%) and among patients with diagnosis of AD (62.8%), similar data to the ones found in medical literature. For instance, a Cuban study that investigated the prevalence of dementia syndrome, in which 281 patients were assessed, there was female predominance (63.4% of samples)<sup>3</sup>. Revising

Table 4. Age, cognition and influence of neuropsychiatric symptoms on functional impairment.

Model	Standardized coefficient Beta	t	p value
1 (constant)		3.128	0.002
Age	0.106	1.509	0.135
MEEM	-0.473	-6.551	<0.001
NPI	0.468	6.480	<0.001

the epidemiologic studies of dementia prevalence from 1994 to 2000, it was observed higher prevalence of female dementia in several geographic areas researched<sup>1</sup>. With regards to other demographic factors, 51.3% of the patients assisted were married, 34% widowed, and the majority of the samples (54%) had from 1 to 4 years of education. Almeida<sup>15</sup>, studying the prevalence of psychiatric symptoms in patients from a university ambulatory service, described a similar sample, in which 60% were women, 49.3% married, but with fewer years of education, as 37.3% reported they had never been to school. Vale et al.<sup>16</sup> has also found similar results in which 57.3% were married and 27.6% widowed with fewer years of education (on average 3 years of education) in patients from an ambulatory of a tertiary hospital.

AD was the most frequent diagnosis in the sample studied. The prevalence found was 62.8% and AD associated to DV 8.8%. Martínez<sup>3</sup> has found 53.7% prevalence of patients who presented AD of late onset, 26.8% vascular dementia and 19.5% Alzheimer disease + vascular dementia. Our findings are also similar to those described in other reports of other Brazilian services. Takada et al.<sup>17</sup> described that AD was the most frequent diagnosis (164 cases; 59.6%) at the neurology clinic from HC FMUSP. Silva et al.<sup>2</sup>, at a neurology ambulatory of tertiary hospital, evidenced a sample with vascular dementia prevalence of 24.9% and AD of 23.7%, with predominance of mild and moderate cases (83.5% of cases). Reviewing the prevalence of dementia in community studies, Lopes and Bottino<sup>1</sup> ob-

served that AD was more prevalent than vascular dementia in all geographic regions researched. The data found in our ambulatories, therefore, are in accordance with the literature, although it is a study of prevalence with convenience sample, which is not necessarily representative of the elderly residing in the community.

Depression constituted a comorbidity in 22.1% of patients in this sample. In similar studies mentioned before, about the profile of patients assisted at university ambulatory service, 69.3% of patients with dementia reported the presence of sadness and/or loss of interest for things in SRQ-20 (Self Reporting Questionnaire)<sup>15</sup>. Probably, this higher prevalence occurred because depressive symptomatology was described, and not the diagnosis of depressive disorder as in the present study. In any case, this finding indicates the importance of assessment of psychiatric morbidity in patients with dementia, which has an impact on the carer and the patient's suffering. Vale et al.<sup>16</sup> observed that more than half of his patients in the ambulatory of a tertiary hospital had other disorders associated with the demential syndrome, in which the most frequent disorders were alcoholism and depression. Depression, together with sleeping disorders, apathy and irritability were the most common symptoms in individuals with cognitive impairment non-dementia (CIND), and without cognitive deficit in the study of Peters et al.<sup>18</sup>. In a study carried out in our environment, which will be described in more detail afterwards, more details following described, anxiety and sleeping alteration, followed by depression were the most common symptoms in CIND<sup>19</sup> patients. These individuals with cognitive deficits must be observed with attention, due to the risk of developing dementia in the future and its potential therapeutic importance, which must be clarified.

The neuropsychiatric symptoms are commonly found in elderly patients with dementia and AD. These include agitation, depression, delirium, hallucination, physical and verbal aggression, perambulation, absence of sexual inhibition, anxiety, irritability, euphoria, eating and sleeping disorders<sup>19</sup>. Among the most common symptoms, agitation, depression, anxiety, irritability, apathy and abnormal motor behavior can be mentioned<sup>18</sup>. These neuropsychiatric symptoms are very common and serious when the disease is well established, but can also be present months or years before the diagnosis and precede the beginning of cognitive deficits in patients with AD<sup>18</sup>. NPI, together with "Behavioral Pathology in Alzheimer's Disease Rating Scale" (BEHAVE-AD) and the "Manchester and Oxford University Scale for the Psychopathological Assessment of Dementia", has been used with the purpose of investigating the presence of psychiatric morbidity in patients with dementia<sup>17</sup>. The occurrence of at least one psychiat-

ric symptom was observed in almost all patients of our sample (97%), probably because it was an ambulatory specialized in dementia, of a university hospital. Tatsch et al.<sup>19</sup> found, at least, one neuropsychiatric symptom in 78.3% of patients with Alzheimer disease, in 33% of the patients with CIND, and in 15.4% of the healthy ones, in a study of prevalence of neuropsychiatric symptoms in the elderly from the community. Apathy (53.3%), depression (38.3), sleeping disorder (38.3%) and anxiety (25%) were the most frequent symptoms in the samples of patients with AD from that study<sup>19</sup>. These results partially replicate the findings in other populational studies, that found apathy and depression the two most prevailing symptoms in patients with AD<sup>20,21</sup>. In our sample, the frequency of neuropsychiatric symptoms has increased according to the increase of the severity of the disease. Besides, they were more common in dementia causes other than AD. The relation between the prevalence of neuropsychiatric symptoms and the severity of dementia varied widely in the studies previously mentioned. For instance, without significant difference though, Tatsch et al.<sup>19</sup> found 7.7%, 16% and 23.4% of agitation/aggressiveness prevalence and 15.4%, 28% and 47% of abnormal motor behavior in patients grouped into dementia severity, according to the scale CDR in 0.5, 1 and 2–3. The same happened to the assessment of functional capacity, which diminished with the severity of the disease, together with the increase of cognitive impairment. Apart from the relation with the cognitive impairment, it was observed that the functional capacity also depends on the incidence of neuropsychiatric symptoms, reinforcing their impact on the patient's treatment and on the carer's stress. Such relation can also be found in cases of cognitive impairment non-dementia, in which the degree of cognitive and functional deficit was higher in individuals with CIND and neuropsychiatric symptoms<sup>18</sup>. Peters et al.<sup>18</sup> found these associations, in which patients with CIND and neuropsychiatric symptoms were significantly worse than the ones without neuropsychiatric symptoms, in functional measures, but there was no difference with regards to demographic, cognitive and neuropsychiatric variables.

Systematic assessment of patients with cognitive deficits, quantifying not only the cognitive and functional deficits, but also the neuropsychiatric symptoms, using the protocol presented in this study, can help early identification of these symptoms, making it advantageous to examine them also in individuals with risk of dementia<sup>18</sup>. The early identification of these symptoms is important, as they are associated with worse prognosis, increase of caring costs, increase in caregiver's overload and early institutionalization of the elderly<sup>18,19</sup>, and also with the functional impairment, as it was observed in the present

study. An early diagnosis can enable the implementation of pharmacological and non-pharmacological therapeutic intervention, which can have a positive impact on the patients and their relatives quality of life.

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