

Brief communication Σύντομο άρθρο

Depression and financial capacity assessment in Parkinson's disease with dementia: Overlooking an important factor?

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Depression affects cognitive abilities, such as thinking, concentration and making decisions in both young adults and elders. However, financial capacity (which consists of multiple cognitive domains and specific skills) and depression in Parkinson's disease with dementia (PDD) are little investigated. Sixty participants divided into four groups (PDD with and without depressive symptoms, non-demented elders with and without depression) were examined with the Mini-Mental State Examination (MMSE), the Geriatric Depression Scale (GDS-15) and the Legal Capacity for Property Law Transactions Assessment Scale (LCPLTAS) – full and short form. Results indicated that PDD patients' performance in cognitive functioning and financial capacity is severely impaired, while there is a statistically significant difference between depressed and non-depressed PDD patients. Differences in financial capacity performance indicate that depression should not be disregarded. Further studies on larger PDD population are necessary in order to investigate the decisive role of depression on financial capacity impairment.

Key words: Financial capacity, Parkinson's disease, dementia, depressive symptoms.

Introduction

Cognitive impairment in Parkinson's disease (PD) seems to play a significant role and may have important consequences for patient management, however, many aspects of cognitive deficits in PD remain unclear.^{1,2} In addition to that, the comorbidity of dementia and depression in PD are very common and this is further perplexing the research in the assessment of capacities.^{3–5} In the case of Parkinson's disease with dementia (PDD), the impact of cognitive impairment on financial capacity is still little investigated.⁶ Moreover, there is lack of

relevant research for financial capacity as one facet of instrumental activity of daily living (IADL) in non-American cultural environments.

Therefore, in the case of financial capacity which includes a variety of activities and specific skills, such as performance skills (e.g. arithmetic counting coins/currency, paying bills etc.) and judgment-decision making skills,⁶ there is scarce research that does not encompass PD and PDD. Even at a theoretical level there is not a clear approach to the issue of financial capacity assessment, since in PD as well as PDD decline in IADLs has often mistakenly been linked to the related progressive motor dysfunction.

However, IADLs require both maintenance of cognitive abilities and motor skills.⁶

The aim of this study is to investigate financial capacity following Martin's et al (2013) paradigm,⁶ which distinguishes motor and non-motor contributions to IADL. In addition, the focus here is on depression and PDD. More specifically, the research questions were whether PDD patients have a different financial capacity profile from healthy elders and if the existence of depressive symptomatology differentiates the group of PDD patients.

Material and method

A total sample of sixty older adults (32 women, 28 men) from Northern Greece took part in the study. Thirty participants were patients with Parkinson's disease, under levodopa treatment for at least two years, who met the criteria for dementia (PDD), based on DSM-IV criteria for dementia and clinical recommendations for PDD diagnosis.⁷ Sixteen patients had only the diagnosis of PDD with no depressive symptoms according to the 15-item Geriatric Depression Scale when following a cut-off 6/7 point for diagnosing depression⁸ (GDS-15 mean score=0.50, minimum GDS score=0 and maximum GDS score=5), and fourteen had PDD with depression according to their self-reported depressive symptomatology (GDS-15 mean score=9.00, minimum GDS score=7 and maximum GDS score=15) and depressive symptomatology reported by their family for a maximum of 12 months period. Thirty elders matched with the patient group in age, sex, and level of education, coming from a larger pool of data, were also tested as a control group. Sixteen controls had no depression (GDS-15 mean score=0.00, minimum and maximum GDS scores=0) and fourteen had depression for a maximum of 12 months period and they were not under antidepressant treatment at the time of the examination (GDS-15 mean score=8.78, minimum GDS score=7 and maximum GDS score=10). PDD patients, patients with a diagnosis of depression and healthy controls were excluded from the study if prior neurosurgical interventions, a history of substance abuse, concomitant serious medical illness (including significant visual or auditory impairment not corrected sufficiently by visual/audi-

tory aids) occurred. Exclusion criteria for the group of healthy controls and patients with depression included serious cognitive impairment, and also in the case of healthy controls a history of major psychiatric condition.

Cognitive impairment was measured with the Mini-Mental State Examination (MMSE), depressive symptomatology with the GDS-15 – and confirmed through a structured interview with patients and their caregivers/family members, and financial capacity with the Greek version of the Legal Capacity for Property Law Transactions Assessment Scale (LCPLTAS), full and short form.^{9,10} LCPLTAS is based on the conceptual model for financial capacity of Marson's et al.¹¹ The LCPLTAS full and short forms both consist of 7 domains: (1) basic monetary skills, (2) cash transactions, (3) bank statement management, (4) bill payment, (5) financial conceptual knowledge, (6) financial decision making, and (7) knowledge of personal assets. The LCPLTAS does not rely solely on the motor component, and therefore it is considered suitable for the assessment of financial capacity and decision making for financial matters.¹⁰

Ethical approval for this study was obtained from the Research Ethics Committee of the School of Medicine, Aristotle University of Thessaloniki. Participants gave informed consent, while in the cases of severe dementia participants, at least one of their accompanying family members (legal next of kin) provided informed consent.

Results

When controls with and without depression were compared to PDD patients with and without depression, one-way analysis of variance revealed statistically significant differences regarding not only the MMSE scores [F(3, 56)=85.38, $p=0.000$, $n^2=0.8206$], but also the financial capacity as examined by LCPLTAS full form [F(3, 56)=49.26, $p=0.000$, $n^2=0.7252$] and LCPLTAS full form [F(3, 56)=50.07, $p=0.000$, $n^2=0.7284$]. Post-hoc analyses using the Tamhane's T2 was performed indicated that the mean scores for each of the four groups was significantly different from the other groups (table 1).

Table 1. Demographics and scores on MMSE and LCPLTAS full and short form of PDD patients with and without depression and healthy controls with and without depression.

		n	Mean	Std. Deviation	Std. Error	Minimum	Maximum
Age	PDD	16	77.18	7.41	1.85	61.00	91.00
	PDD-D	14	74.71	10.39	2.77	57.00	89.00
	HC	16	77.06	7.46	1.86	61.00	91.00
	DC	14	74.78	10.09	2.69	58.00	89.00
Education in years	PDD	16	8.06	3.62	0.90	3.00	16.00
	PDD-D	14	9.21	4.85	1.29	3.00	18.00
	HC	16	8.18	3.39	0.84	4.00	16.00
	DC	14	8.85	4.24	1.13	4.00	15.00
MMSE	PDD	16	24.81	1.83	0.45	20.00	26.00
	PDD-D	14	19.85	3.25	0.86	14.00	24.00
	HC	16	29.56	0.62	0.15	28.00	30.00
	DC	14	29.35	0.63	0.16	28.00	30.00
LCPLTAS full total score	PDD	16	177.06	38.52	9.63	92.00	212.00
	PDD-D	14	101.57	39.27	10.49	53.00	157.00
	HC	16	210.31	2.08	0.52	204.00	212.00
	DC	14	209.35	1.94	0.52	205.00	212.00
LCPLTAS short total score	PDD	16	119.81	26.09	6.52	63.00	144.00
	PDD-D	14	65.64	28.94	7.73	28.00	104.00
	HC	16	143.12	1.54	0.38	138.00	144.00
	DC	14	142.28	1.32	0.35	141.00	144.00

MMSE, Mini-Mental State Examination; LCPLTAS, Legal Capacity for Property Law Transactions Assessment Scale; PDD, Parkinson's disease with dementia; PDD-D, Parkinson's disease with dementia and depression; HC, healthy controls; DC, controls with depression

In addition, very strong positive correlations were found between the MMSE score and the LCPLTAS short form ($r=0.933$, $p=0.000$), as well as between the MMSE score and LCPLTAS full form ($r=0.935$, $p=0.000$).

Discussion

These preliminary findings provide support for the existence of impairment of financial capacity in PDD. Financial incapacity was found in PDD, in accordance with the findings of other studies in different cultural environments.⁶ Moreover, we found that depressive symptomatology seems to play an important role, since a greater impairment is found for the group of PDD with depression and the ac-

tual difference in mean scores between the groups is quite large (see effect sizes for the differences above). The MMSE was also found to be closely linked to the assessment of financial capacity, and it is therefore recommended to be included in legal and neuropsychological settings regarding the assessment of civil capacities.

Although the sample size was small and there was a noticeable variability in financial capacity for the group of PDD, it was clearly found that financial capacity performance in PDD was 2–2.5 SDs lower from the healthy controls' mean performance. In addition to that, the group of PDD patients is not a homogeneous group when financial capacity is in question. More specifically, PDD pa-

tients with depression and PDD patients without depression differ in a statistically significant way; the first group showing more cognitive problems related to financial thinking and handling than the second group. Future research should further explore the brain mechanisms underlying this re-

ported difference in PDD patients and the detrimental effects of depression on financial capacity. Moreover, the utility of other neuropsychological tests, other than MMSE, should be further evaluated when comparing PDD patients with other groups of older patients.¹²

Κατάθλιψη και εκτίμηση της ικανότητας για δικαιοπραξίες περιουσιακού δικαίου σε ασθενείς με νόσο Πάρκινσον και άνοια: Παράβλεψη ενός σημαντικού παράγοντα;

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Η κατάθλιψη επηρεάζει τις νοητικές ικανότητες, όπως τη σκέψη, τη συγκέντρωση και τη λήψη αποφάσεων, σε νέους ενήλικους και σε ηλικιωμένους. Ωστόσο, η ικανότητα για δικαιοπραξίες περιουσιακού δικαίου (η οποία αποτελείται από πολλούς γνωστικούς τομείς και συγκεκριμένες δεξιότητες) και η κατάθλιψη στη νόσο Πάρκινσον με άνοια (PDD) δεν έχουν διερευνηθεί επαρκώς. Εξήντα συμμετέχοντες χωρίστηκαν σε τέσσερις ομάδες (PDD ασθενείς με και χωρίς καταθλιπτικά συμπτώματα, ηλικιωμένους μη ανοϊκούς με και χωρίς κατάθλιψη), οι οποίοι εξετάστηκαν με τη δοκιμασία Mini-Mental State Examination (MMSE), την κλίμακα Geriatric Depression Scale (GDS-15) και την Κλίμακα Αξιολόγησης Ικανότητας για Δικαιοπραξίες Περιουσιακού Δικαίου (LCPLTAS) στην πλήρη και σύνομη μορφή της. Τα αποτελέσματα έδειξαν ότι οι επιδόσεις των ασθενών με PDD στις νοητικές λειτουργίες και στη δικαιοπρακτική ικανότητα παρουσιάζουν σοβαρά ελλείμματα, ενώ υπάρχει και στατιστικώς σημαντική διαφορά μεταξύ των ασθενών PDD με κατάθλιψη και των μη καταθλιπτικών PDD ασθενών. Οι διαφορές στην επίδοση που αφορά σε δικαιοπραξίες περιουσιακού δικαίου υποδηλώνουν ότι η κατάθλιψη δεν πρέπει να αγνοείται. Περαιτέρω μελέτες σε μεγαλύτερο πληθυσμό ασθενών με PDD είναι απαραίτητες προκειμένου να διερευνηθεί ο αποφασιστικός ρόλος της κατάθλιψης στην ικανότητα για δικαιοπραξίες περιουσιακού δικαίου.

Λέξεις ευρετηρίου: Ικανότητα για δικαιοπραξίες περιουσιακού δικαίου, νόσος Πάρκινσον, άνοια, καταθλιπτικά συμπτώματα.

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