ORIGINAL ARTICLE

doi: 10.5455/medarh.2014.68.44-46

Published online: 20/02/2014
Published print: 02/2014

Med Arh. 2014 Feb; 68(1): 44-46
Received: November 18th 2013 | Accepted: January 15th 2014

Correlation of Age and Severity of Clinical Manifestation Assessed by UPDRS in Patients with Idiopathic Parkinson's Disease

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ABSTRACT

Aim: in older people with Parkinson's disease the symptoms are more expressed. **Background:** Essential change in Parkinson's disease is the impaired neurotransmission in basal ganglia. Idiopathic Parkinson's disease (IPD) is the most frequent type of Parkinsonism, being present in about 70% of the patients with Parkinsonism. **Material and methods:** This study has been prospective, clinically one, which has been lasting for whole 2 years. This study comprised a total of 32 subjects with clinically verified diagnosis for idiopathic Parkinson's disease, 18 men and 14 women (with mean age of 52,7 years). Control group consisted of 31 randomly selected, literally healthy persons, at similar age, with similar gender representation without clinical and anamnestic data for Parkinsonism and similar clinical entities. This study was made at the University Clinic of Neurology in Skopje, Medical Faculty, University "St. Cyril and Methodius". The persons investigated had idiopathic Parkinson's disease (IPD), in whom IPD was verified by means of: detailed anamnesis, detailed clinical neurologic examination, strictly keeping to Brain Bank Criteria, and by means of neurophysiologic investigations, neuroimaging investigations and neuropsychologic investigations. Minimal symptoms of IPD after UPDRS were present in 34,4% of the examinees, there were 40,6% with slight signs, while equal number of the examinees 4 (12,5%) had pronounce and very expressed symptoms of Parkinson's disease after UPDRS. **Conclusion:** Parkinson's disease is with more expressed signs and symptoms and with slight symptoms in older patients with this diagnosis.

Key words:: severity of clinical manifestations, UPDRS, idiopathic Parkinson's disease.

1. INTRODUCTION

IPD has a favorable clinical outcome during treatment with dopamine agonists or levodopa drugs, mostly occurs unilaterally, manifested with typical clinical manifestation of generalized slowness (bradykinesia) and typical tremor (4-6 Hz) in the form of money counting (1-7).

The essential change in IPD is decreased dopaminergic neurotransmission in the basal ganglia. Idiopathic Parkinson's disease is the most common type of Parkinsonism, and is present in about 70 % of patients with Parkinsonism (7).

The basic pathoanatomical substrate consists in the loss of neurons which contain neuromelanin in the substantia nigra and locus ceruleus in 60 %, and the loss of dopaminergic neurons, which is about 50-85 % lower in the corpus striatum than normal (5).

Standards for diagnosis of idiopathic form of Parkinson's disease today are unified since 1992, the scientific world is served with Brain Bank Criteria, standard criteria established by the Association for Parkinson's disease in UK (United Kingdom Parkinson's Disease Society–UKPDS). It consists of three successive stages, namely: the diagnosis of Parkinson syndrome, exclusive criteria and additional prospective positive criteria for PD (6).

For unifying and objectification the assessment of severity of the clinical manifestation of Parkinson's disease, there have been several attempts to create scales for assessing the severity of the clinical picture.

Activities in the scientific world during the objective examination of clinical status of patients with Parkinson's disease most commonly is used scale for assessing Unified Parkinson's disease (UPDRS-The Unified Parkinson's Disease Rating Scale), which was first promoted by Fan S. and Elton RL. (1987) (4). Already in 1995, the Association for involuntary movements (MDS-Movement Disorders Society) noted the need for revision of this scale (1). A group of authors from the International Assembly executive of MDS (2003), provided the benchmarks for the beginning of the audit UPDRS scale [8]. Christopher Getz and contributors (2008), under the auspices of MDS, announced a revised form of the UPDRS (2).

Parkinsonism usually manifests in early 50s, where increasing age is a significant risk factor. The prevalence grows exponentially after 65 -year old, so about 0.3 % of

the general population and 3 % of people over 65 years suffer from idiopathic Parkinsonism. The disease affects both sexes approximately equally (9, 10).

2. MATERIAL AND METHODS

The study included a total of 32 subjects with clinically verified diagnosis of idiopathic Parkinson's disease, 18 men and 14 women with an average age of 52.7 years. The youngest participant is 30, while the oldest is 78 years old. Control group consisted of 31 randomly selected healthy persons, of similar age, with similar gender representation without clinical and anamnestic data for Parkinsonism and related clinical entities. Clinical part of the study was developed in University Clinic of Neurology–Skopje, Department of extrapyramidal disorders at the Medical Faculty of the University "St. Cyril and Methodius". Participants were patients with idiopathic Parkinson's disease (IPD), which were verified with IPD, using: a detailed taken anamnesis, clinically detailed neurological examination, strict adherence to the Brain Bank Criteria and by means of examinations carried out as follows: neurophysiological tests, nuclear magnetic resonance imaging of the brain (MRI), Doppler of the extra cranial carotid arteries and neuropsychological tests. For objective assessment of the severity of the clinical condition of our respondents who have clinically been verified with IPD by Brain Bank Criteria we used Unified scale assessment of Parkinson's disease (UPDRS-The Unified Parkinson's Disease Rating Scale) developed by the Association for involuntary movements (MDS–Movement Disorders Society) in 1995 [1, 8]. With UPDRS scale, if there are minimal symptoms of IPD, the patient will have a score of 1, while if there are maximum expressed symptoms will have score of 30. To simplify the expression of the results of our study using the UPDRS scale, we decided symptoms of the disease to express in 4 stages:

1–Minimal signs of IPD (score 1-5);
2–Light signs of IPD (score 6-10);
3–Expressed symptoms of IPD (score 11-20) and
4–Quite pronounced symptoms of IPD (score 21-30) [1]

3. RESULTS

The gender of the respondents is presented in 18 (56.25 %) men and 14 (43.75 %) of the respondents were female. The mean age of patients was 52,7 ± 10,3 years. The youngest participant is 30, the oldest is 78 years old. The mean (median) with a value of 50 indicates that 16 (50 %) of respondents are in the age group of 50 to 59 years, and only 23 (71,87 %) of patients are older than 50 years (Table 1).

Age (years)	N	%
30-39	4	12.5
40-49	5	15.62
50-59	16	50.0
60-69	5	15.62
70 >	2	6.26
Total	32	100
Mean = 52.75±10.3 Median = 50	Min=30	Max=78

Table 1. Distribution of respondents by age

To determine the clinical severity of the respondents is used a uniform rating scale for Parkinson's disease (UPDRS). According to UPDRS, all analyzed respondents with symptoms or signs of Parkinson's disease with minimal symptoms of IPD according to UPDRS have 11 (34.4 %) respondents, with mild signs 13 (40.6 %), while an equal number of respondents 4 (12.5 %) have expressed and quite pronounced symptoms of Parkinson's disease according to UPDRS (Table 2).

Clinical symptoms by UPDRS	N	%
There are no symptoms for IPD	/	/
Minimal signs	11	34.37
Mild signs	13	40.63
Expressed symptoms	4	12.5
Very expressed symptoms	4	12.5
Total	32	100

Table 2. Severity of clinical picture in Parkinson's disease according by UPDRS

Table 3 shows the distribution of respondents by male and female in terms of reaction by applying the optimal doses of levodopa therapy. In both groups dominate respondents who have a very good response to treatment with levodopa (50.0 % male and 78.6 % female respondents). Well respond to applied therapy 5 (27.8 %) males and 3 (21.4 %) of respondents were female, while with weak reaction were 4 (22.2 %) male patients. These differences in the therapeutic effect of optimal doses of levodopa among respondents from male and female are insufficient to be confirmed statistically (p> 0,05), so we can conclude that the sex of the patients with IPD has no significant impact on the effect levodopa as substitution therapy in optimal doses given in the treatment of patients with IPD.

The average age of respondents according to UPDRS scale who have minimal symptoms of Parkinson's disease was 53,6 ± 10,3 years in participants with mild signs of disease the average age was 52,8 ± 8,1 years, while quite pronounced symptoms have the group whose average is the youngest, 45 ± 15,3 years.

UPDRS	N	Age (Mean)	Age (SD)
Minimal signs	11	53.63	10.28
Mild signs	13	52.85	8.10
Expressed symptoms	4	57.75	11.73
Very expressed symptoms	4	45.00	15.30

Table 3. Severity of clinical picture (UPDRS)–age of patients

Correlation or association between age of respondents and the clinical severity assessed by UPDRS scale is shown in Figure 1. This correlation has a value by Spearman correlation coefficient of R = -0,039, suggesting indirect or negative correlation. Parkinson's disease is with more severe clinical course in younger patients and vice versa, the disease manifests with minor symptoms in elderly patients. But according to the value of the coefficient we can conclude that the correlation between these two parameters is weak and statistically insignificant (p> 0,05).

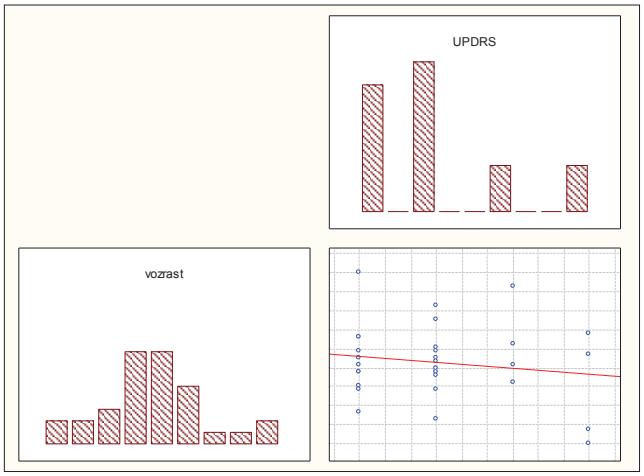

Figure 1. Correlation between the severity of clinical picture according UPDRS and the age of respondents with IPD (Spearman Rank Order Correlations R=-0.039 p>0.05)

4. DISCUSSION

According to the Brain Bank Criteria, and specifically in its third stage, respectively the auxiliary prospective positive criteria for Parkinson's disease, says that, approximately 70-100 % of patients with IPD have a good response to levodopa therapy (6).

Stephen Ku and Graham Glass (2010) in a study of 109 patients with IPD, where the manifestation of symptoms were in different periods of age, concluded very interesting data, including that the effect of levodopa was much higher in patients with Parkinson's disease in more advanced age than those where the disease is manifested at a younger age. Both authors also concluded that if the disease manifests later in life, minimum dose of substitution therapy had a very good effect on all symptoms of disease. The same study concluded and reduction of the occurrence of dyskinesia by 70 % in the age group 40-49 years to 24 % in the group when symptoms of IPD are manifested between 70-79 years. The conclusions of this study are fully compatible with our obtained results (9).

Duleeka MW and collaborators (2011) in a study of 426 patients with Parkinson's disease, using the specific PDQ-39 scale for determining the quality of the life in these patients, concluded that early presenting forms of Parkinson's disease is a severe clinical form of the disease in terms of patients in whom the disease occurs in advanced age. Also, the authors concluded that symptoms of depression are more common in early presenting forms, compared with patients where the disease manifests in later stages of life (3).

5. CONCLUSION

Correlation or association between the age of respondents and the clinical severity assessed by UPDRS scale is shown in the Figure 10. This correlation has a value for Spearman correlation coefficient of R =-0,039, suggesting indirect or negative correlation. Parkinson's disease has more severe clinical course in younger patients and vice versa, the disease manifests with minor symptoms in elderly patients. But according to the value of the coefficient we can conclude that the correlation between these two parameters is weak and statistically insignificant (p> 0,05).

CONFLICT OF INTEREST: NONE DECLARED

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