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OBJECTIVE

To compare the occurrence of diabetes and hypertension and to look at the difference in daily energy expenditure in a sample of overweight/obese vs. underweight/normal weight veterans with Parkinson's disease (PD).

BACKGROUND

Because PD patients tend to live sedentary lifestyles, we hypothesized that they might have a higher incidence of diabetes and hypertension, particularly those who are overweight.

METHODS

We mailed a demographic and illness characteristics survey, including an investigator-generated Parkinson's disease (PD) activity questionnaire (measuring frequency, type, and intensity of daily activities), gathering data on 100 veterans with PD. From patients' self-reported weight, we classified them as underweight/normal weight (BMI < 24.9 kg/m²) and overweight/obese (BMI > 25 kg/m²) based upon the National Heart Lung and Blood Institute definition. We obtained diagnoses of diabetes and hypertension and disability status from patients' charts.

RESULTS

- 42% of patients were underweight/normal weight and 58% were overweight/obese. Mean body mass index was 26.3 kg/m², range 17.1-38.6 kg/m².
- Diabetes was present in 5% of patients (n=2) in the underweight/normal weight group and in 21% of patients (n=12) in the overweight/obese group. The difference between groups was statistically significant (p=0.02).
- Hypertension was present in 52% of patients (n=22) in the underweight/normal group and in 66% of patients (n=38) in the overweight weight/obese group. The difference between groups was not statistically significant (p=0.19).
- In patients with and without hypertension, age (p=0.04) and disease duration (p=0.002) were statistically significant.
- There was no difference in daily energy expenditure in both patients with and patients without diabetes and hypertension.

Table 1. Clinical Characteristics of PD Patients with and without Diabetes

Variable	Non-diabetic n=86	Diabetic n=14	p-value
Age (years) Mean (SD)	73.3 (8.9)	69.9 (9.2)	0.20
Years Parkinson's Disease duration, Mean (SD)	8.5 (5.6)	6.0 (9.4)	0.36
Hoehn & Yahr Stage Mean (SD)	2.7 (0.8)	2.7 (0.8)	0.94
Self-reported health Status, n (%)			0.97
poor	5 (5.9)	1 (7.1)	
fair	39 (45.9)	6 (42.9)	
good/excellent	41 (48.2)	7 (50.0)	
Self-reported Quality of Life, n (%)			0.33
not good	15 (18.1)	0 (0.0)	
sometimes good	18 (21.7)	3 (23.1)	
usually good	44 (53.0)	8 (61.5)	
could not be better	6 (7.2)	2 (15.4)	
Education, n (%)			0.67
<high school, high school	31 (36.5)	5 (35.7)	
some college	19 (22.4)	5 (35.7)	
college degree	22 (25.9)	2 (14.3)	
graduate degree	13 (15.3)	2 (14.3)	
Income, n (%)			0.88
<Adequate	29 (34.1)	4 (36.4)	
Adequate, >adequate	56 (65.9)	7 (63.6)	

Table 2. Clinical Characteristics of PD Patients with and without Hypertension

Variable	without Hypertension n=40	with Hypertension n=60	p-value
Age (years) Mean (SD)	70.5 (9.0)	74.3 (8.8)	0.04*
Years Parkinson's Disease duration, Mean (SD)	10.5 (6.2)	6.6 (5.8)	0.002*
Hoehn & Yahr Stage Mean (SD)	2.7 (0.7)	2.7 (0.8)	0.87
Self-reported health Status, n (%)			0.84
poor	3 (7.7)	3 (5.0)	
fair	18 (46.2)	27 (45.0)	
good/excellent	18 (46.2)	30 (50.0)	
Self-reported Quality of Life, n (%)			0.66
not good	6 (15.4)	9 (15.8)	
sometimes good	11 (28.2)	10 (17.5)	
usually good	19 (48.7)	33 (57.9)	
could not be better	3 (7.7)	5 (8.8)	
Education, n (%)			0.86
<high school, high school	14 (35.9)	22 (36.7)	
some college	8 (20.5)	16 (26.7)	
college degree	10 (25.6)	14 (23.3)	
graduate degree	7 (18.0)	8 (13.3)	
Income, n (%)			0.80
<Adequate	14 (35.9)	19 (33.3)	
Adequate, >adequate	25 (64.1)	38 (66.7)	

Variable	n=	Mean (SD) Kilocalories	p-value
Negative for diabetes	86	1963.5 (1188.1)	0.94
Positive for diabetes	14	1989.4 (1704.2)	
Negative for HTN	40	2136.4 (1097.9)	0.28
Positive for HTN	60	1854.2 (1358.1)	

Table 3. Daily Energy Expenditure in Kilocalories

Conclusions

- Contrary to some reports, over one half the patients with Parkinson's disease (PD) were overweight/obese. The high incidence of diabetes and hypertension is also a cause for concern.
- Health care providers should discuss nutrition, physical activity, and weight reduction with patients and their caregivers as appropriate.
- The presence of diabetes, hypertension, and other co-morbidities in patients with PD merits further study.

