



## Malnutrition status and cognitive functions correlation in patients with Parkinson's disease and atypical Parkinsonisms: a Preliminary Study.

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### BACKGROUND

In Parkinson's disease (PD) and atypical parkinsonisms (PKS) changes in nutritional status are observed throughout the duration of the disease, with consequent body weight and muscle mass loss and possible sarcopenia. The objective of this study was to verify how nutritional status and body composition are associated with cognitive functions.

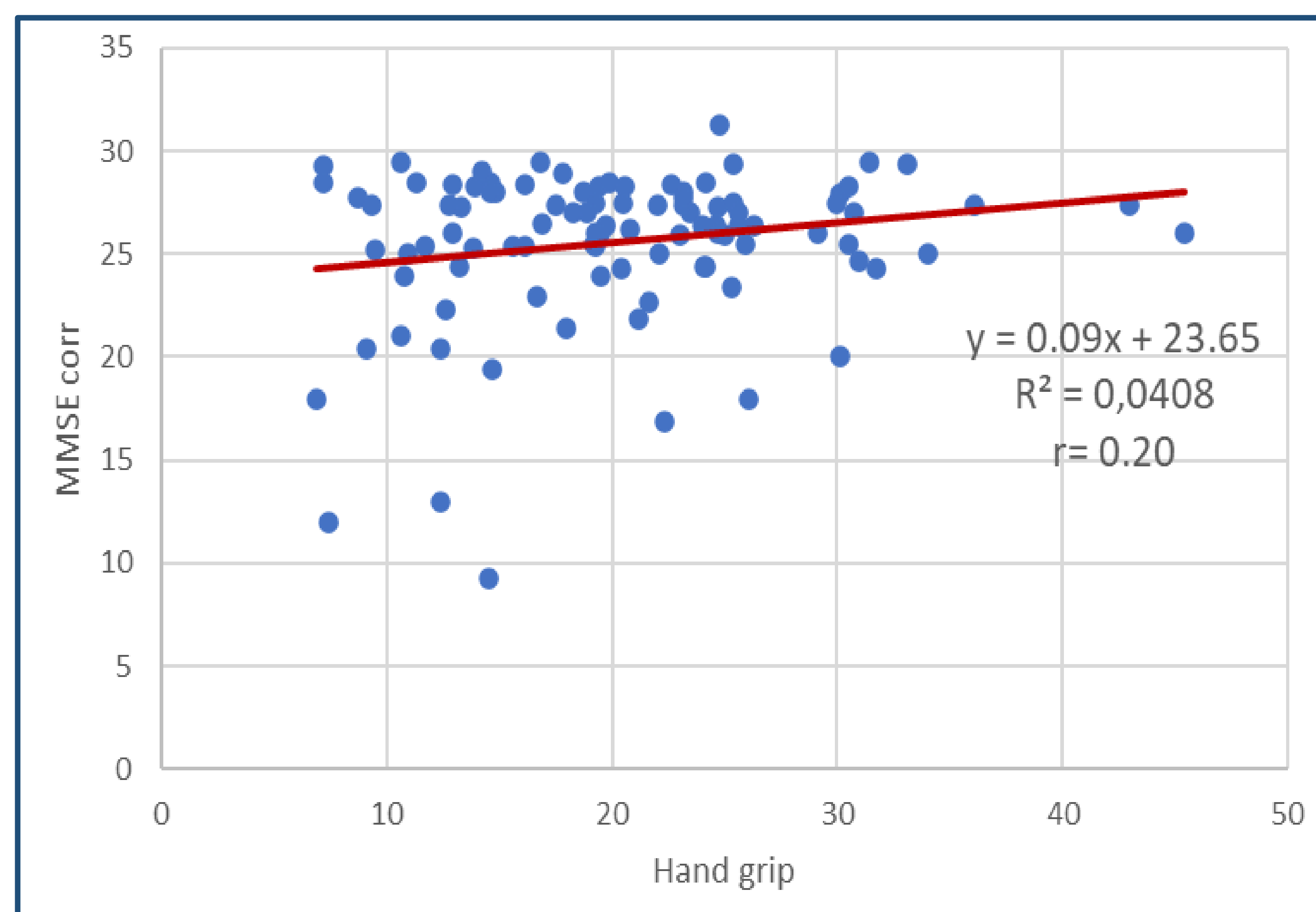
Feature	Men (N=64)	Women (N=36)
Middle age (years)	70 ± 6.7	67 ± 5.7
Disease duration (years)	6.5 ± 4.4	10.1 ± 6.3
Parkinson's Disease, (N)	41(64.1 %)	32 (88.8 %)
Atypical parkinsonisms, (N)	23 (35.9%)	6 (11.1%)
UPDRS (score)	40.3 ± 19.1	29.3 ± 12.1
UPDRS part III (score)	28.4 ± 11.3	23.8 ± 12.2
Hohen-Yahr stage (score)	2.4 ± 0.60	2.3 ± 0.60
Subjects receiving levodopa therapy, (N)	64 (100%)	36 (100%)
Body weight (kg)	77.4 ± 12.0	57.2 ± 11.5
BMI (kg/m <sup>2</sup> )	27.4 ± 4.3	23.6 ± 5.1
Protein redistribution diet (N)	23 (35.9%)	16 (44.5%)
Smokers (N)	5(7.8%)	5(13.8%)
Physical activity (hours/week)	2.3 ± 2.5	1.9 ± 1.7
SDQ (score)	2.7 ± 4.0	4.2 ± 5.0

### MATERIALS AND METHODS

We enrolled patients with PD or atypical PKS (MSA, PSP and LBD), aged 60 years and over, hospitalized in the Department of Neurology of Asst-Pini-Cto (Milan). We evaluated: anthropometric parameters (weight, height, circumferences, bioimpedance analysis, routine blood tests, nutritional risk and swallowing disturbances (MUST, MNA, SDQ, EAT-10), disease duration, UPDRS, H&Y scale, drug therapy, global cognition tests (MMSE, MOCA). The diagnosis of sarcopenia was conducted according to EWGSOP2 criteria, based on handgrip strength test (HGS), skeletal muscle index (SMI) and 4-meter gait speed test (GST).

### RESULTS

We enrolled 100 patients, 64 men and 36 women (mean age, 68 years, DS±6.5). Mean BMI was 23.6 kg/m<sup>2</sup> in women and 27.4 kg/m<sup>2</sup> in men; 5 patients presented underweight, 38 normal weight, 33 overweight, 24 obesity. Low HGS and GST were found in 69% and 100% of patients, respectively. Sarcopenia was diagnosed in 5 women (14%) and 11 men (17.5%). The evaluation of severe sarcopenia was rendered inaccurate by the influence of motor symptoms on GST. Using general linear models to test the association between BMI class, SMI, sarcopenia and HGS with MMSE and MOCA, a significant difference was found in MMSE, correct for age and schooling, only between patients presenting low and normal HGS (F-ratio, 3.9; P=0.049).



Correlation between HGS and MMSE

### CONCLUSION

HGS shows a widespread reduction in strength, but in this preliminary group of enrolled patients we found only a correlation between the decrease of HGS and the MMSE. Other investigations in larger populations are needed.



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