

Cross-sectional data analysis on plasma levels of vitamin D in Parkinson's disease

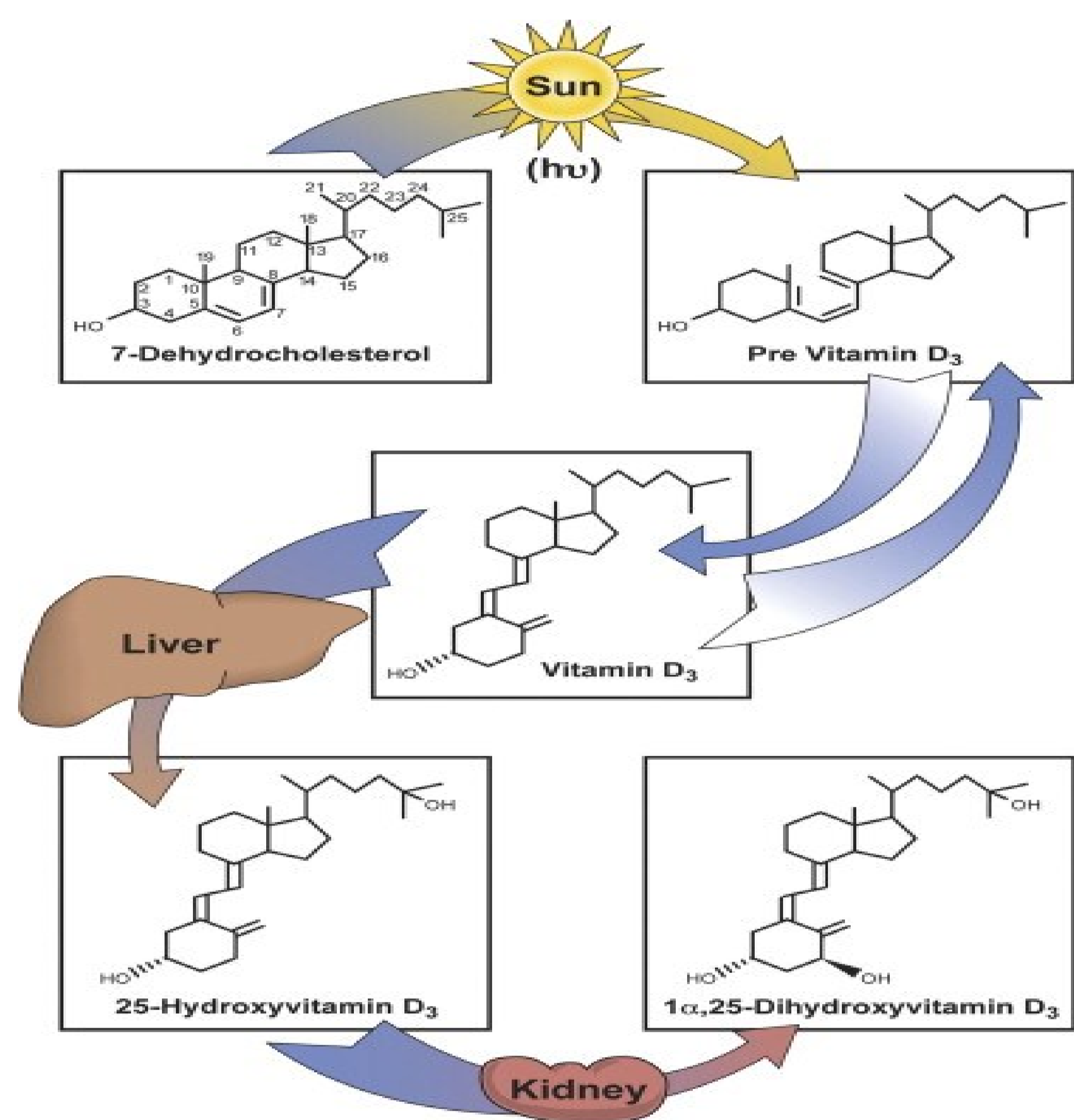
Michela Barichella^a MD, Carlotta Bolliri^a ScD, Giovanna Pinelli^{a,b} MD PhD, Laura Iorio^a MD, Valentina Ferri^a MD, Erica Cassani^{a,c} MD, Angelica Giana^a ScD, Francesca Monti Guarnieri^a ScD, Serena Caronni^a ScD, Chiara Pusani^a RD, Francesca Del Sorbo^a MD PhD, Roberto Cilia^a MD, Caterina Esposito^a ScD, Maria Giulia Schiaffino^a MD, Elena Quacci^a ScD, Eleonora Vaccarella^a ScD, Giulio Riboldazzi^c MD, Emanuele Cereda^d MD PhD, Gianni Pezzoli^a MD

a. Parkinson Institute, ASST G.Pini-CTO, via Bignami 1, Milan, Italy.

b. Dipartimento Riabilitazione Malattia di Parkinson e Disturbi del Movimento, Ospedale Classificato Moriggia Pelascini di Gravedona, Italy.

c. U.S. Riabilitazione Parkinson, Fondazione Gaetano e Piera Borghi di Brebbia, Brebbia, Italy.

d. Clinical Nutrition and Dietetics Unit, Fondazione IRCCS Policlinico San Matteo, Pavia, Italy.



OBJECTIVES

In recent years, attention has been paid to the role of vitamin D in Parkinson's disease (PD), in fact a greater severity of the disease seems to be associated with a lower serum concentration of this vitamin. This study aims to evaluate the plasma levels of 25(OH)D in PD and to correlate them with cognitive function and nutritional intake of these patients.

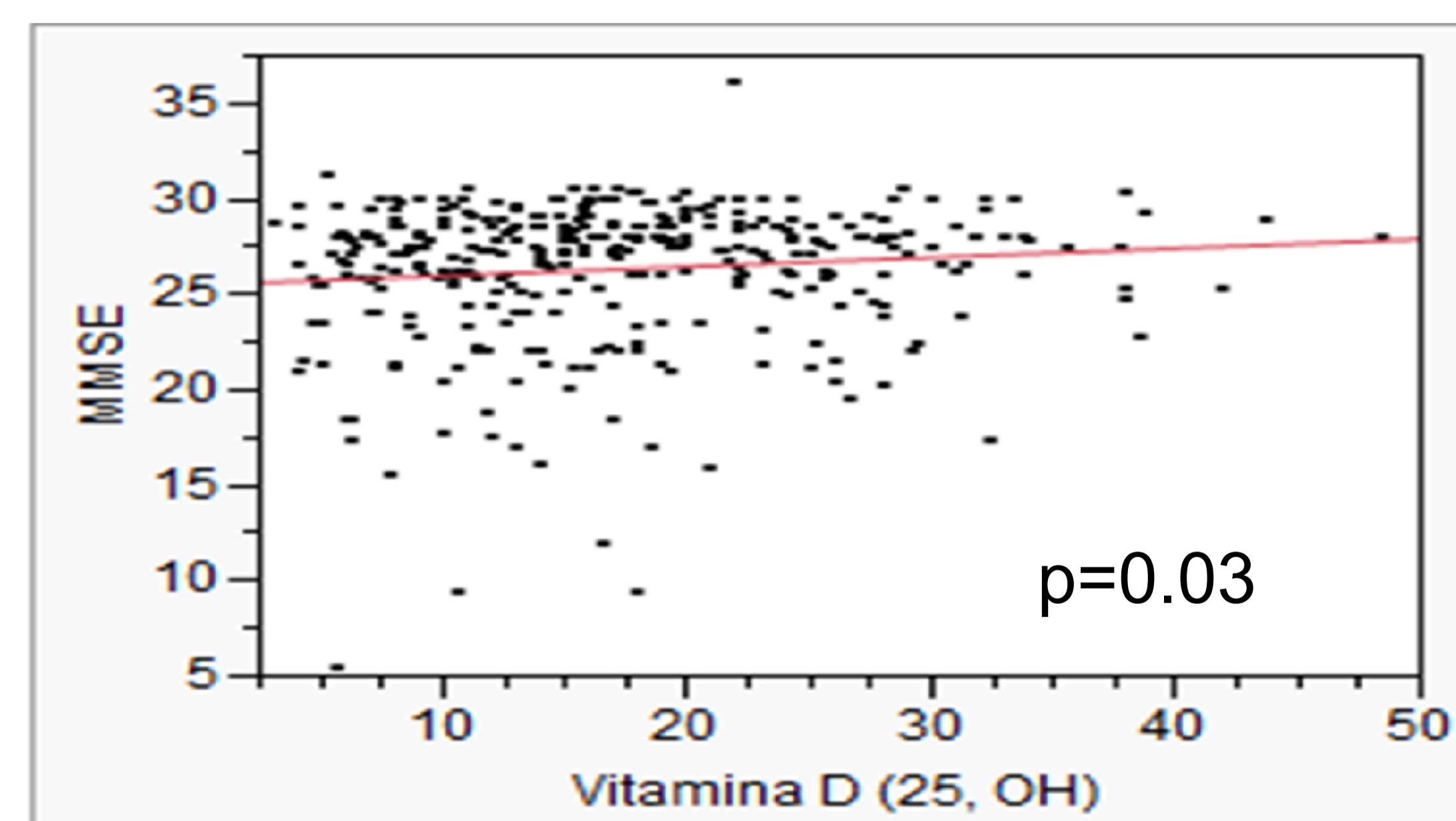
Plasma levels (ng/ml)	Vitamin D (25-OH) Status
<10	Highly deficient
10-20	Deficient
20-30	Insufficient
30-50	Sufficient
> 150	Toxic

METHODS

Plasma 25(OH)D levels of PD patients recruited from throughout Italy were collected and correlated with anthropometric parameters, Mini Mental State Examination (MMSE) and Food Frequency Questionnaire. Major exclusion criteria: age <60 yr; oral supplementation of vitamin D.

RESULTS

We enrolled 350 PD patients (66.3% male, 33.7% female). Mean age was 70.5 yr (range 61-89) and mean BMI was 26.1 kg/m² (± 5.4). The mean 25(OH)D level was 17.1 ng/ml (±8.34) (deficiency). Mean disease duration was 9.9 (± 5.7) yr. By simple linear correlation, a significant direct association between 25(OH)D and MMSE score (p=0.03) and an inverse association between 25(OH)D and age (p<0.01) was observed. Moreover, an inverse association between 25(OH)D and Hoehn and Yahr (p=0.01) stage was found. Finally, a direct association between 25(OH)D and intake of vitamin D contained in food (p=0.03), PUFA (p=0.04), and vitamin B12 (p=0.02) was observed.



CONCLUSIONS

Low 25(OH)D levels correlate with higher age, worse cognitive abilities and worse disease severity. About nutritional data, higher plasma levels of 25(OH)D correlate with consumption of food rich in PUFA and/or vitamin B12 and/or vitamin D. In management of PD patients, dosage of 25(OH)D plasma levels, adequate nutritional intake of vitamin D and vitamin D oral supplementation might be recommended.