

BAROPODOMETRIC EXAMINATION AND ALZHEIMER DISEASE: AN (UN)EXPECTED RELATION

MARIANETTI M, VOLPINI A, VOLPINI M, PINNA S, DE LUCIA E, MINIO A, VENUTI A, PERESSON M*, CARDARELLI M

Experimental Alzheimer Centre (NEDCCG) – St John of God Institute- Fatebenefratelli; Genzano di Roma, Rome
 *U.O.C. Neurology- St Peter Hospital- Fatebenefratelli; Rome

Walking in constructed and natural environments places high demands on the interplay between cognitive (i.e. executive and attention functions) and motor functions. This is why gait disturbances are extremely common in people affected by Alzheimer Disease (AD) and gait analysis is so important for these patients. In this field Baropodometric Examination (BE) has been rarely investigated in literature.

Objective: to analyze gait using Baropodometric Examination in a group of patients affected by Alzheimer Disease at various stages.

Materials e methods: 30 patients affected by Alzheimer Disease (10 mild, 10 moderate, 10 severe; age: 75 ± 7.8 ; education 6 ± 5.3 ; dementia was staged using the Mini Mental State Examination) underwent a Baropodometric Examination. We considered alteration of gait patterns (AGP), displacement of the center of pressure (DCP), presence of static research of equilibrium (SRE). The patients were evaluated also with the Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) for autonomy and with Neuro Psychiatric Inventory (NPI) for behavioural disturbances.

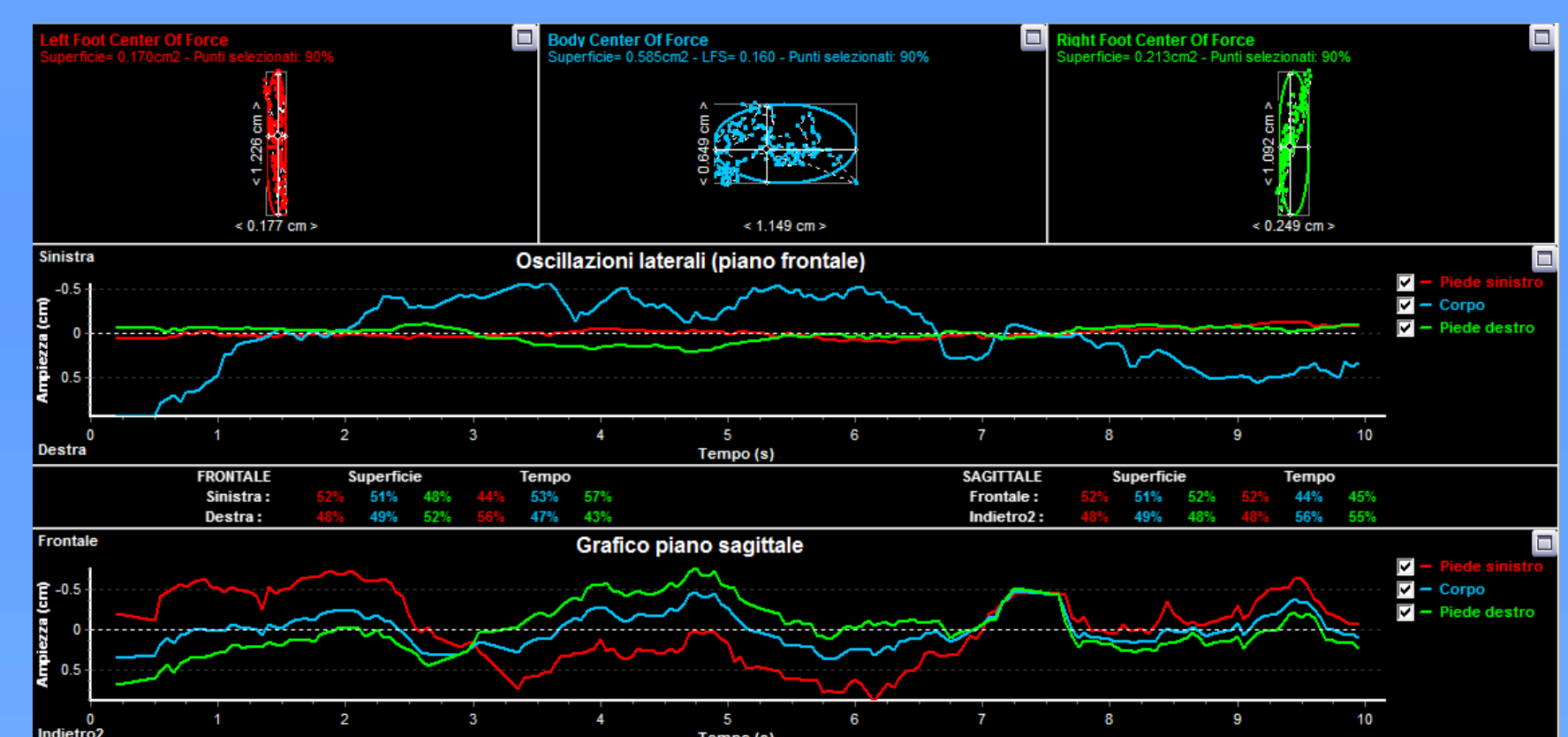
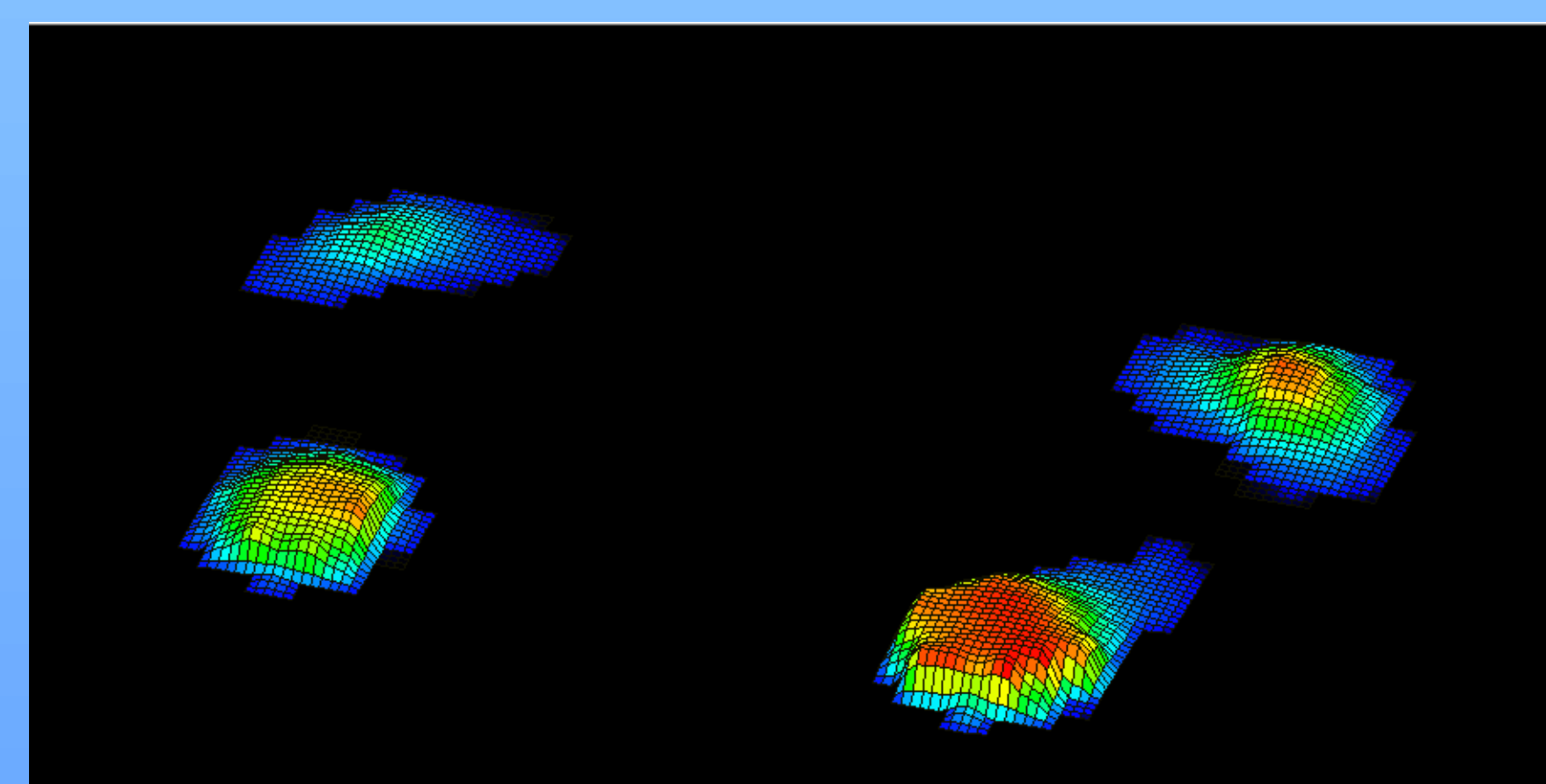
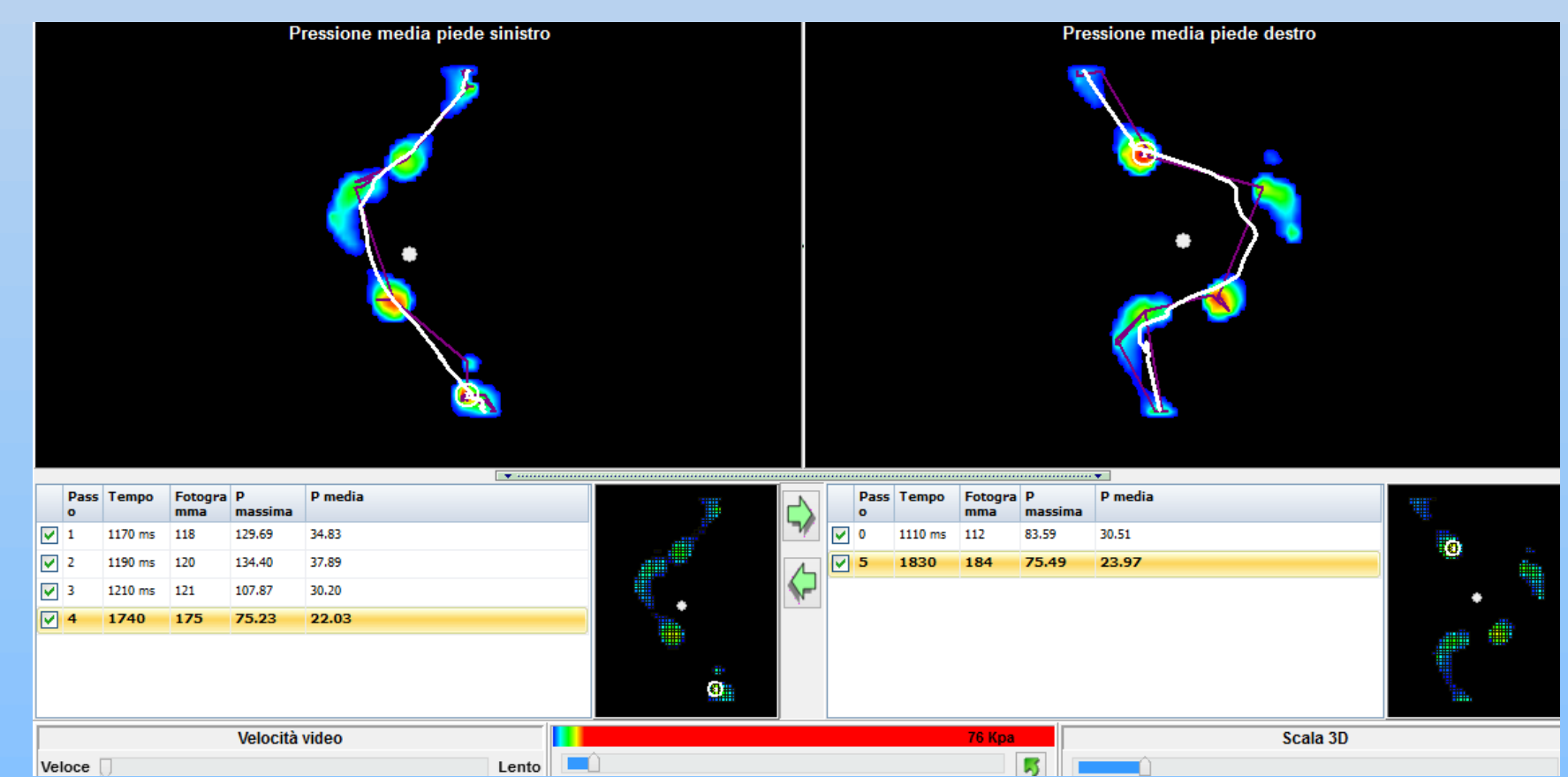
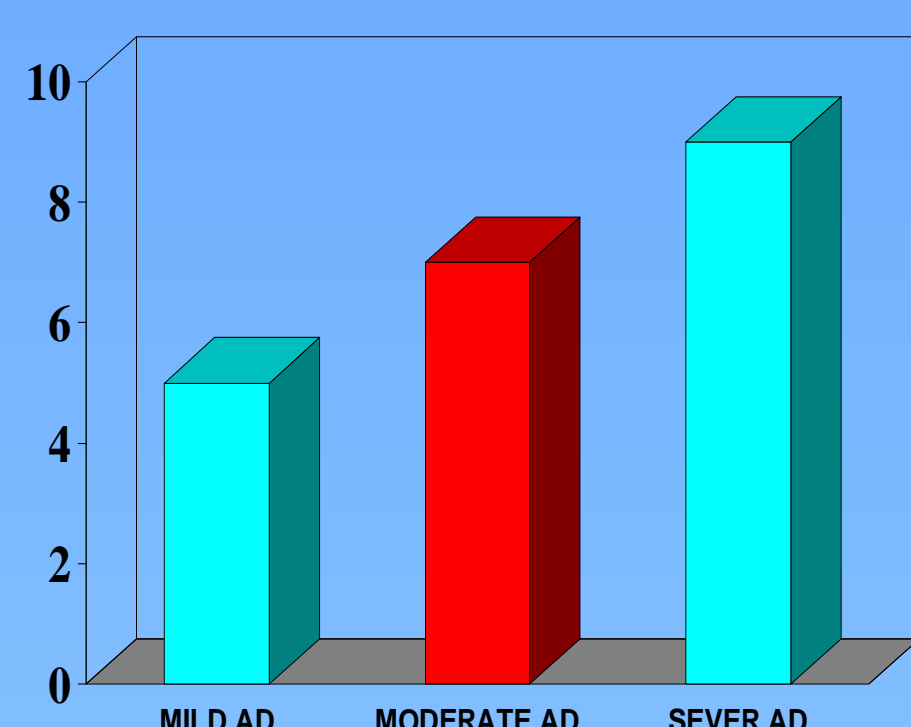
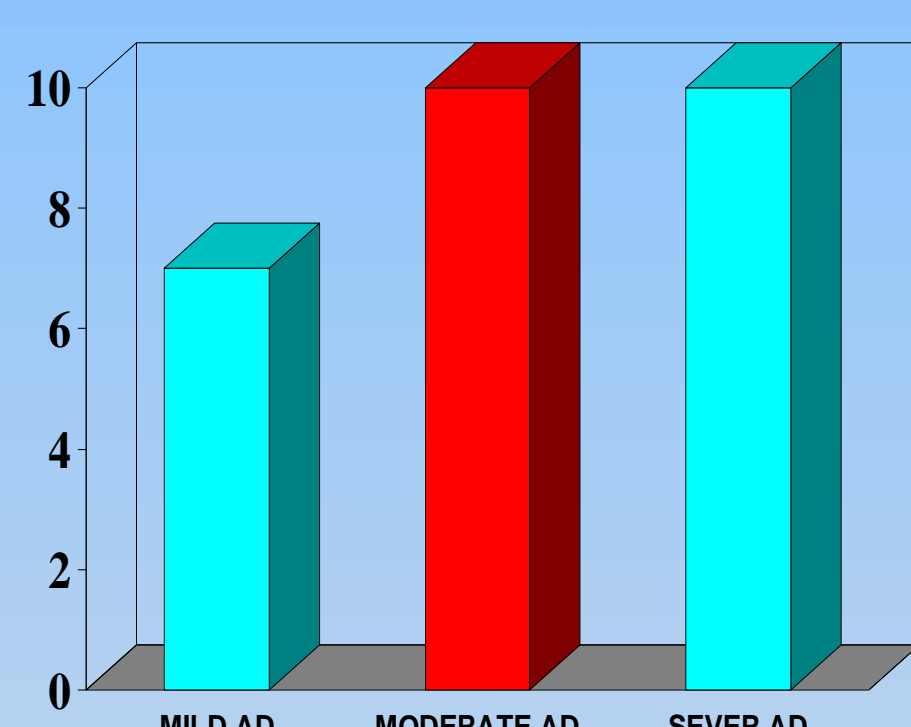


Figure 1-3: Baropodometric alteration patterns in AD patients

ALTERATION OF GAIT PATTERNS



DISPLACEMENT CENTRE OF PRESSURE



STATIC RESEARCH OF EQUILIBRIUM

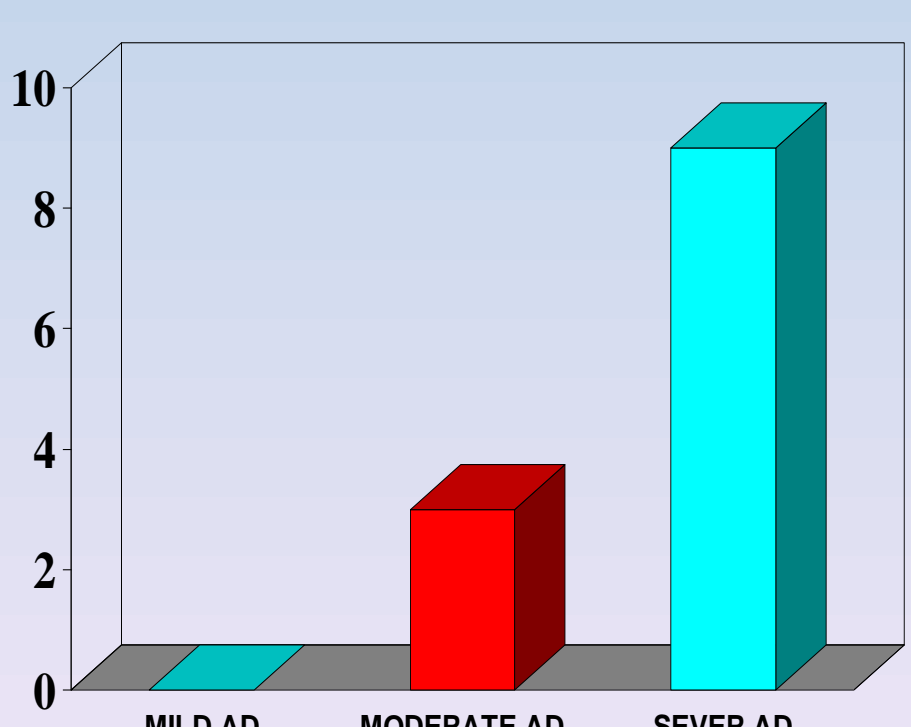


Figure 4-6: % of AD patients with abnormalities

Results: 90% of our patients presented displacement of the center of pressure (7 with mild AD, 10 with moderate AD, 10 with severe AD), 70% alteration of gait patterns (5 with mild AD, 7 with moderate AD, 9 with severe AD) and 40% static research of equilibrium (3 with moderate AD and 9 with Severe AD). These findings were not related to the presence of behavioural disturbances and functional disability (Fig. 1-6).

Discussion and conclusions: 90% of our AD patients showed to have at least one alteration at BE. The most common alteration was DCP. The progressive association of AGP and SRE seemed to follow disease severity. Even if with many limitations, we think that the results of this study are very interesting, especially if we consider the importance of evaluating equilibrium in people with dementia to prevent accidental falls. Further studies are needed to clarify which role BE can have in demented patients health care.