

The International 22nd Puijo Symposium
"PHYSICAL EXERCISE IN CLINICAL MEDICINE –
CRITICAL APPRAISAL OF SCIENTIFIC EVIDENCE"
June 24 - 28, 2014 Kuopio, Finland

HRV IN MCI: LINEAR VS NONLINEAR ANALYSES AND GENDER INFLUENCE.

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Objective.

Heart Rate Variability (HRV) is a robust predictor of Cardiovascular (CV) Health and cardiac mortality (1). Due to the autonomic control of the anti-inflammatory processes through the vagus nerve and its neurotransmitter acetylcholine (2-4), recent studies remark the potential use of HRV analyses in mental diseases like Mild Cognitive Impairment (MCI), where it has been described an important deficit of acetylcholine and an autonomic dysfunction, linking inflammation, CV impairment and cognitive losses (2). This study aims to deepen on HRV analyses in MCI, considering gender and methodology differences, since nonlinear analyses have been proposed as better health predictors (5).

Methods.

10 min of fasting-baseline Heart-Rate registers (Polar RS800cx), were recorded in 33 elderly Amnesic-MCI (a-MCI, 6): 21 female and 12 male recruited from a Neurology Unit (San-Vicente-del-Raspeig Hospital, Spain). 5min free-of-artifact epochs were analyzed for HRV (Kubios v2.1 software), while T-test for unpaired samples were applied for gender comparisons (*Student's T-test* or *Mann-Whitney T-test*).

Results.

Table 1 shows an overall low HRV in a-MCI. Men presented significantly better indices whatever the methodology. Time-domain showed higher RRi and a trend in RMSSD. Despite their great within variation, HF was larger and TP trended to, in the Frequency Domain indices; while nonlinear SD1 and DFA1 behaved very similarly. Notwithstanding, women diastolic blood pressure trended to be better.

Conclusions.

Low HRV scores, even lower than previous studies (2, 7, 8), confirm the high risk of CV disease in elderly with aMCI. SDNN and RMSSD impairment represents an important reduction in short-term variability confirmed by the nonlinear SD1, reflecting a worsening in the parasympathetic control of the sinus node. Early interventions aimed to cardiovascular risk prevention should be developed in the first stages of MCI, mainly in women. HRV analyses coincide with previous conclusions about MCI risk profile (9), confirming its potential.