

Statin-Associated Muscle Symptoms – Clinical Index in a hypertensive population candidate to lipid-lowering therapy but not taking statins

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Aim: Statin-associated muscle symptoms (SAMS) are claimed to be frequent in clinical practice. The SAMS-clinical index (SAMS-CI) assesses the likelihood that muscle symptoms are related to statin use. We evaluated the prevalence and characteristics of muscle symptoms in hypertensive patients eligible for statin therapy according to their individual cardiovascular risk.

Methods: Observational study on 390 consecutive outpatients referred to our Centre. All patients were asked the following question: “Have you ever taken a drug/nutraceutical that you think gave you muscle symptoms?”. Patients who answered “yes” were evaluated with SAMS-CI.

Results: Mean age: 60.5±13.5 years. Male prevalence: 53.8%. Patients who have ever taken a statin (“statin+” group): 250. Patients who have never taken a statin but have taken at least one other drug (“statin-” group): 140. Prevalence of muscle symptoms did not differ between the groups (p=0.217). Age and number of drugs taken were significantly associated with muscle symptoms at multivariate analysis. A not clinically significant higher SAMS-CI score emerged in the “statin+” group (p=0.004). Localization and pattern of muscle symptoms did not differ between the groups (p=0.170). Timing of muscle symptoms onset after starting the drug (p=0.036) and timing of symptom improvement after withdrawal (p=0.002) were associated with statin therapy.

Conclusions: Prevalence of patient-reported muscle symptoms was not associated with statin therapy in our real life clinical study, confirming the growing evidence that subjective muscle-related symptoms are often misattributed to statins, while they may more likely be related to the nocebo/drucebo effect or other common undiagnosed conditions.

Biomarkers of mitochondrial dysfunction and inflammaging in older adults and blood pressure variability

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Aim: Increased Blood Pressure (BP) Variability (BPV) may represent an alteration in BP physiological homeostatic patterns. Most physiopathological mechanisms underlying BPV are implicated in aging. Vascular aging is associated with chronic low-grade inflammation occurring in late life, known as “inflammaging”, and the hallmark “mitochondrial dysfunction” associated to stress due to age-related disorders, which in turn might contribute to higher BPV and risk of cardiovascular disease. We aimed to determine whether plasma levels of the pleiotropic stress-related mitokine Growth/Differentiation Factor 15 (GDF-15) and two inflammatory biomarkers, Interleukin 6 (IL-6) and Tumor necrosis factor receptor 1 (TNFR-1), are associated with visit-to-visit BPV in a population of community-dwelling older adults.

Methods: The study population consisted of 1,096 participants [median age 75 (72-78) years; 699 females, 63.7%] selected among community-dwelling participants aged ≥70 years from the MAPT study. Plasma blood sample was collected 12 months after enrolment and BP was assessed up to seven times over a subsequent 4-year period. Systolic BPV (SBPV) and diastolic BPV (DBPV) were determined through several indicators including the coefficient of variation (CV%) and taking into account BP change over time, the order of measurements and formulas independent of mean BP levels.

Results: Higher values of GDF-15 were significantly associated with increased SBPV (all indicators) after adjustment for demographics, body mass index, MAPT randomization group, baseline systolic BP, antihypertensive drugs, diabetes mellitus, cardiovascular and non-cardiovascular comorbidities [adjusted 1-SD increase in GDF-15: β (SE)= 0.07 (0.04), p< 0.044, for CV%]. GDF-15 levels were not associated with DBPV. No significant associations were found between IL-6 and BPV, whereas TNFR1 was only partially related to DBPV.

Conclusions: Unlike inflammation biomarkers, higher GDF-15 levels were associated with greater SBPV. Our findings support the age-related process of mitochondrial dysfunction underlying BP instability, suggesting that BPV might be a potential marker of aging.

Reference

Bencivenga, L., Strumia, M., Rolland, Y. *et al.* Biomarkers of mitochondrial dysfunction and inflammaging in older adults and blood pressure variability. *GeroScience* 45, 797–809 (2023).