



Plasma Myeloperoxidase in Acute Brain Ischemia and High-grade Carotid Stenosis

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Introduction

Myeloperoxidase (MPO) is an important oxidative enzyme participating in different stages of cardiovascular disease and predicts prognosis. Little is known about its role in acute cerebrovascular events and carotid plaque vulnerability.

Methods

Plasma MPO levels were assessed in patients presenting with acute brain ischemia within 36 hours of symptom onset (n=144, mean age 64.7± 11.6years, 67% men), and in patients with moderate-severe carotid stenosis undergoing angiography for carotid artery stenting (n=51, mean age 66.3±8.4 years, 75% men). Patients presenting with acute brain ischemia were assessed serially for stroke severity (NIH stroke scale; NIHSS), and disability [modified Rankin Scale (mRS)].

Results

Plasma MPO concentrations (ng/ml) were associated with interleukin-6 (r=0.38, p<0.0001.), gender [median (interquartile range)] of 68.6 (49.8-107.0) vs. 59.7 (42.7-85.5) in women vs. men,[p=0.02]. MPO levels did not differ significantly between patients with acute brain ischemia (66.7, 46.4-97.3), patients with carotid stenosis (54.2, 41.7-80.8)[p=0.1]). Among patients with acute brain ischemia, MPO concentrations were associated non-lacunar subtype (bottom, middle and top tertiles of 37.5%, 71.7%, 71.7% respectively, p=0.001), with stroke severity (baseline NIHSS score>10) bottom, middle and top tertiles 6.3%, vs. 41.7% and 31.3%, respectively; p<0.006) as well as with stroke severity at day 1-2, day 4-5, and at discharge (p <0.05 for all), less with disability at discharge [mRS=2 of 41.7% vs. 60.4% and 58.7% for bottom, middle and top tertiles, respectively; p=0.096). MPO concentrations did not differ between patients with symptomatic (n=23) median 50.1 (41.7-107) vs. asymptomatic carotid stenosis (n=28) 54.6 (41.9-70.3), nor by stenosis severity.

Conclusions

Among patients with acute brain ischemia, plasma MPO concentrations were associated with stroke severity and non-lacunar subtype, but not with long term functional disability. MPO concentrations did not differ significantly between the groups: acute brain ischemia patients, patients with carotid stenosis, nor between symptomatic and asymptomatic carotid plaque.

References are available upon request.

Learning Objectives

plasma MPO concentrations were associated with stroke severity