Abstract: P6004

Safety assessment and results of coronary spasm provocation testing in patients with MINOCA compared to patients with stable angina and unobstructed coronary arteries

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Background: Approximately 10% of patients with acute myocardial infarction do not have a culprit lesion. Such patients have been labelled as MINOCA (myocardial infarction with non-obstructive coronary arteries) and several pathophysiological etiologies have been described as potential explanations. This includes spontaneous coronary dissection, tako-tsubo-syndrome and coronary spasm. The latter can be diagnosed during invasive provocative testing. The aim of this study was to assess the frequency of coronary spasm and the safety of intracoronary provocation testing using acetylcholine in MINOCA patients compared to patients with stable angina and unobstructed coronary arteries.

Methods: Between 2007 and 2018 180 consecutive patients with either MINOCA or stable angina and unobstructed coronary arteries were enrolled. MINOCA was defined as acute onset of chest pain with either ST-segment elevation on the ECG or significant high sensitive troponin T elevation but no relevant epicardial stenosis (<50%) according to the current ESC guidelines. All patients underwent intracoronary acetylcholine provocation testing (ACH-test) in search of coronary spasm according to a standardized protocol immediately after diagnostic coronary angiography. Apart from systematic assessment of clinical, demographic and risk factor data, data regarding complications during the ACH-test were meticulously recorded.

Results: Eighty patients with MINOCA and 100 consecutive patients with stable angina were recruited (52% women, mean age 62+/−13 years). Overall, 59% had hypertension and 20% had diabetes. Comparison of clinical, demographic and risk factor data did not reveal any statistically significant differences except for a female preponderance in the stable patients (61% vs. 40%, p=0.007). The ACH-test revealed a coronary vasomotor disorder in 68% of cases. In 32% of cases the ACH-test was either inconclusive or negative. Epicardial spasm was found in 31% of patients with a higher prevalence among the MINOCA patients compared to the stable angina patients (41% vs. 23%, p=0.002). Microvascular spasm was found in 37% with a higher prevalence among the stable angina patients compared to the MINOCA cohort (49% vs. 23%, p=0.002). Assessment of complications during the ACH-test revealed that 13 MINOCA patients and 15 stable angina patients had minor complications such as intermittent atrioventricular block, sinusbradycardia, paroxysmal atrial fibrillation, ventricular ectopic beats or transient hypotension. Comparison of minor complications between the two groups did not reveal statistically significant differences (16% vs. 15%, p=0.839). None of the patients experienced any irreversible complications.

Conclusion: Coronary spasm is a frequent cause for MINOCA. Intracoronary spasm provocation testing using acetylcholine is feasible in such patients. The complication rate during ACH-testing in MINOCA patients is low and comparable to patients with stable angina.