RAS inhibitors and size of infarct

In the Journal of the Norwegian Medical Association no. 22/2010 (1), an American observation study is mentioned, which showed that pre-event treatment with inhibitors of the renin-angiotensin-system (RAS inhibitors), angiotensin- converting enzyme (ACE) inhibitors, and angiotensin II antagonists was associated with reduced size of a first ST segment elevation myocardial infarction (STEMI) (2). In patients who received this treatment, the peak troponin I level was 79 ng/dl versus 120 ng/dl in those who were not treated ($p = 0.016$). Corresponding levels in a sub-group with hypertension were 79 ng/dl versus 130 ng/dl ($p = 0.015$). The authors stated in their conclusion that «We have demonstrated in our study for the first time that use of RAS inhibitors before STEMI is also associated with decreased peak TnI level.»

This is a truth with modifications as we were engaged in this research issue many years ago and made corresponding findings. Of 410 patients with acute myocardial infarction who were not given thrombolytic treatment on admission, 72 patients had taken an ACE inhibitor before admission (3). A multivariate analysis was carried out and showed that use of ACE inhibitors was accompanied by reduced peak plasma creatine kinase (CK_{max}) levels (730 U/l versus 1056 U/l in non-users: $p < 0.001$) and peak plasma lactate dehydrogenase (LD_{max}) levels (795 U/l versus 906 U/l: $p = 0.044$). In another study, 299 hypertensive patients with acute myocardial infarction were included (4). In patients who were on ACE inhibitors on admission, the odds ratio for death during admission was 0.44 ($p = 0.045$), i.e. 56 % lower mortality than those who were not given this treatment. The connection between size of infarct and survival after myocardial infarction is well documented: The larger the infarct the greater the risk of death (5).

Several studies thus indicate that pre-event treatment with RAS inhibitors has a protective effect in patients who develop acute myocardial infarction, as both the size of the infarct and the mortality during hospitalization are reduced.

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