

# **Intravenous morphine reduces plasma endothelin 1 concentration through activation of neutral endopeptidase 24.11 in patients with myocardial infarction.**

王宗倫

**Wang TL;Chang H;;;**

摘要

## **Abstract**

Study Objective: Morphine has multiple cardiovascular effects, but its action on hydrolysis of endothelin 1 (ET-1) has not been investigated. Methods: We measured plasma levels of ET-1, C-terminal degradation products of ET-1, and neutral endopeptidase 24.11 (NEP) in 68 patients with acute Q-wave myocardial infarction and 29 control subjects. All the patients underwent blood sampling at initial presentation and 10 minutes later. Thirty-six of those with Q-wave myocardial infarction intravenously received 3 mg of morphine immediately after the first sampling (group 1), and the other 32 received the same after the second sampling (group 2). Twenty-four of the control subjects (group 3) were randomized to the protocol of group 1, and the remaining 5 subjects (group 4) were randomized to the protocol of group 2. Results: The plasma ET-1 levels were significantly higher in groups 1 and 2 than in groups 3 and 4 (control groups). In group 1, the ET-1 level decreased significantly at second blood samplings ( $2.5 \pm 0.4$  pmol/L versus  $1.7 \pm 0.6$  pmol/L,  $P < .001$ ), whereas there were no definite changes of ET-1 levels in group 2 ( $2.5 \pm 0.5$  pmol/L versus  $2.6 \pm 0.6$  pmol/L,  $P = \text{not significant}$ ). However, the C-terminal degradation products increased significantly at second blood samplings in group 1 ( $0.8 \pm 0.2$  pmol/L versus  $1.3 \pm 0.4$  pmol/L,  $P < .001$ ), whereas there were no definite changes in group 2 ( $0.9 \pm 0.3$  pmol/L versus  $0.9 \pm 0.4$  pmol/L,  $P = \text{not significant}$ ). There was no significant difference in baseline NEP activities between groups 1 and 2 ( $5.02 \pm 1.30$  nmol/mg protein versus  $5.06 \pm 1.48$  nmol/mg protein,  $P = \text{not significant}$ ). However, the NEP activities at second blood samplings declined significantly in group 1 ( $9.76 \pm 1.76$  nmol/mg protein,  $P < .001$  versus baseline), whereas no definite changes were observed in group 2 ( $5.09 \pm 1.62$  nmol/mg protein,  $P = \text{not significant}$  versus baseline). Conclusion: Intravenous morphine may increase NEP activities to accentuate hydrolysis of ET-1. [Wang T-L, Chang H. Intravenous morphine reduces plasma endothelin 1 concentration through activation of

neutral endopeptidase 24.11 in patients with myocardial infarction. *Ann Emerg Med.* May 2001;37:445-449.]