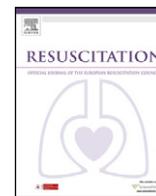


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## Resuscitation

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## Letter to the Editor

**Initial treatment of acute coronary syndromes. Is there a future for MONA acronym after the 2010 guidelines?**

Sir,

Morphine, oxygen (O<sub>2</sub>), nitrates and aspirin, have long been the preferred initial therapeutic measures for the emergency care of patients with acute coronary syndromes (ACS). The acronym 'MONA' has been formed as a mnemonic of these therapeutic modalities in training and everyday practice.

Recently, several issues have emerged regarding treatment of patients with ACS according to MONA.

In a retrospective analysis of the CRUSADE registry, morphine administration in patients with ST-elevation myocardial infarction (MI) was associated with increased rates of mortality and MI. It is unclear, however, whether this association reflects harmful effects of morphine or another, unmeasured, treatment effect. Thus morphine continues to be recommended for the relief of nitrate-refractory pain or pulmonary congestion in patients with ACS.<sup>1</sup>

The routine use of O<sub>2</sub> is the component of MONA that has raised the most important concerns. Hyperoxia caused by inhalation of high flow O<sub>2</sub>, may induce constriction of the coronary resistance vessels in patients with CAD and also exacerbate reperfusion injury to ischaemic myocardium. There is also evidence that routine use of O<sub>2</sub> in uncomplicated MI may increase infarct size and the risk of mortality. To allow for these concerns, current guidelines recommend that O<sub>2</sub> should be administered only to hypoxaemic patients under guidance by pulse oximetry.<sup>2,3</sup>

Randomised trials are needed to give further insight into the effects of morphine and O<sub>2</sub> on the outcome of patients with ACS.

Nitrates remain part of MONA as a means for the control of ischaemic symptoms while aspirin is supported by the strongest evidence for an improvement in patient outcomes<sup>4</sup> and may be given by bystanders even without EMS dispatcher assistance.

So we need to inform healthcare professionals about the necessary changes in administering MONA therapies. Adopting a safer way of giving O<sub>2</sub>, appears to be a top priority. To achieve this we probably have to counteract the effects of years of successful use of MONA towards implementation of a more liberal O<sub>2</sub> use to all patients with ACS. A similar phenomenon was first described for acronyms used in intensive care medicine<sup>5</sup>: an acronym which has been quite successful when it was introduced, eventually ends up maintaining perceptions and medical practices that should be overcome in view of newer evidence.

And last, in order to function properly, MONA should be modified to incorporate newer antiplatelet and antithrombotic therapies that are now indicated as first-line treatments of ACS.

In view of implementation of the new guidelines it is certainly appealing to use acronyms, in order to easily convey messages to healthcare professionals throughout the system of care of patients with ACS. Current problems regarding the use of MONA indicate the need for a discussion regarding the pros and cons of acronyms in general and MONA in particular, as means to facilitate guidelines implementation. This may be the most effective way to attract the attention of healthcare providers, at least those who are familiar with the use of MONA, and avoid confusion, and misconceptions that might ensue as long as the subject remains unnoticed.

**Conflicts of interest**

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