

LETTER

Protective role of statins against ventilator-induced lung injury

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See related research by Müller *et al.*, <http://ccforum.com/content/14/4/R143>

We compliment Dr Müller and colleagues [1] for their experiment on the protective role of simvastatin against ventilator-induced lung injury (VILI). Their results are in line with those of a relevant study published recently by our research team; we also showed that pretreatment with statins (specifically atorvastatin) attenuates VILI [2]. By synthesizing the findings of the above contributions [1,2], one could make several points.

First, given that Müller and colleagues administered simvastatin [1] while we chose atorvastatin [2], it seems that the observed benefit is a class-specific rather than a drug-specific effect; that is, it may apply to the whole class of statins. Second, the prevention of VILI by statins seems not to be species-specific; indeed, our colleagues employed mice [1], while we preferred rabbits [2]. Third, while the first study used female animals [1] and the second study used male animals [2], there were no differences in the produced results; thus, statins seem to be useful for the prevention of VILI in both sexes. This observation is important given the ongoing interest in the possibility that drug responses may differ by sex [3]. Fourth, by using different markers, both studies noted that administration of statins reduced VILI-associated hyperpermeability [1,2]. Indeed, the German group [1] used as a marker of lung permeability the human-serum-albumin bronchoalveolar lavage/plasma ratio, while we used both lung edema and ultrafiltration coefficient (K_{fc}). Finally, Müller and colleagues implemented a 6-hour model of injurious mechanical ventilation to show that statins ameliorate pulmonary inflammation [1],

whereas we focused on the very acute phase of lung injury, when mechanical phenomena rather than inflammation may best explain the injury [2].

In conclusion, we believe that the two papers [1,2] combined provide strong experimental evidence that a dose of statin as high as 20 mg/kg body weight administered before the induction of mechanical ventilation may protect against VILI and relevant clinical trials are thus fully justified.

Abbreviations

VILI = ventilator-induced lung injury.

Competing interests

The authors declare that they have no competing interests.

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Published: 16 September 2010

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doi:10.1186/cc9245

Cite this article as: Siempos II, *et al.*: Protective role of statins against ventilator-induced lung injury. *Critical Care* 2010, **14**:441.

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