

## Natural surfactant aerosolisation in adult respiratory distress syndrome

SIR—Adult respiratory distress syndrome (ARDS) is being redefined. Murray and co-workers' classification<sup>1</sup> indicates first whether the condition is acute or chronic, and second whether the injury is mild to moderate or severe; third it designates a specific cause of the illness or an associated condition if the cause is unknown. Gregory et al<sup>2</sup> conclude that ARDS patients and those at risk of ARDS have greatly altered surfactant phospholipid profiles when compared with healthy individuals. Could natural surfactant aerosolisation prevent the development of ARDS in those at risk? Haslam and colleagues (April 23, p 1009) describe the use of synthetic surfactant (artificial lung-expanding compound, ALEC) in four patients with late-stage ARDS. Bronchial instillation was used for administration of ALEC. Richman used the same method with natural surfactant but in earlier stages of ARDS and obtained better results than Haslam. Because ARDS treatment by surfactant instillation needs large volumes, aerosolisation could be the alternative mode of surfactant administration to the damaged lungs.<sup>4</sup> We nebulised three patients with severe lung injury using natural surfactant and jet nebulisers connected to the ventilator system just proximal to the endotracheal tube. In two we had difficulties with the ventilator (Servo 900) and abandoned our attempt. The ventilators were changed, whereupon we found partial obstruction of the expiratory line with surfactant deposit at the expiratory flow transducer. The third patient had severe lung injury after cardiac surgery with cardiopulmonary bypass and multiple blood transfusions (Murray's score >2.5).<sup>1</sup> A filter was installed in the expiratory line (Omnifilter, Puritan Bennett). The ventilator used in this case was MA1 from Puritan Bennett. The total dose (10 mg/kg body weight) was aerosolised as a continuous nebulisation (total time 6 h) without difficulty with the ventilator. The arterial oxygen tension (PaO<sub>2</sub>) was controlled and divided by the fractional concentration of inspired oxygen (FiO<sub>2</sub>). The PaO<sub>2</sub>/FiO<sub>2</sub> before nebulisation was 160, and 2 h after nebulisation it was 250.

We conclude that surfactant nebulisation in ARDS is possible and effective if filters are used in the expiratory line as described by Haas et al<sup>3</sup> or, as we found (Feb 19, p 482) for cardiac surgery patients, ventilators are used without expiratory lines. We suggest that surfactant administration at a late stage is too delayed to obtain favourable results.

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