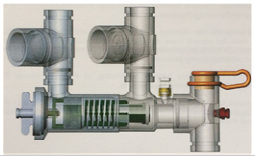

Decreased pulmonary barotrauma with the use of volumetric diffusive respiration in pediatric patients with burns: the 1992 Moyer Award.

Rodeberg DA, Maschinot NE, Housinger TA, Warden GD.

Shriners Burns Institute, Cincinnati, OH - USA

Pulmonary barotrauma is a frequent, life-threatening complication in the pediatric patient who is treated with mechanical ventilation. The volumetric diffusive respiration (VDR) ventilator, which employs a high-frequency progressive accumulation of subtidal volume breaths in a pressure-limited format with a percussive waveform, is capable of providing adequate gas exchange at lower airway pressures; this theoretically decreases the incidence of pulmonary barotrauma compared with conventional mechanical ventilation (CV). The incidence of pulmonary barotrauma since 1988 was evaluated in pediatric patients with burns who were younger than 2 years of age. Twenty-four patients who were treated with only CV were compared with 15 patients who were treated with only VDR. Pulmonary barotrauma was defined as the development of pneumothorax, pneumomediastinum, pneumopericardium, or pneumoperitoneum. There were no significant differences between CV-treated and VDR-treated groups (mean +/- SEM) in the patient characteristics of age (15.9 +/- 1.3 months vs 16.6 +/- 1.8 months), weight (11.2 +/- 0.5 kg vs 12.5 +/- 0.7 kg), percent total body surface burn (46.2% +/- 4.9% vs 55.6% +/- 6.2%), percent full-thickness burn (38.1% +/- 5.3% vs 50.0% +/- 6.6%), inhalation injury (40% vs 60%), or total number of days that mechanical ventilation was required (18.2 +/- 4.2 days vs 22.4 +/- 5.9 days); although these parameters show a slightly more severe degree of injury in the VDR-treated group. There was a reduction in the incidence of pulmonary barotrauma when VDR was used. (ABSTRACT TRUNCATED AT 250 WORDS)

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