



High-frequency percussive ventilation as a salvage modality in adult respiratory distress syndrome: a preliminary study.

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Despite multiple advances in critical care patients with severe adult respiratory distress syndrome (ARDS) can exhaust the capability of conventional ventilation; this results in respiratory failure and death. High-frequency percussive ventilation (HFPV), which was initially utilized for salvage of burn patients with smoke inhalation injury refractory to conventional ventilation, has evolved as a standard of burn care. Based on our experience with HFPV in burn patients the burn team was consulted to provide salvage ventilation for non-burn surgical intensive care unit patients with refractory respiratory failure. Over a 14-month period ten patients with refractory ARDS from multiple causes were treated. Retrospective chart review was performed. Respiratory parameters were assessed before and 24 hours after initiation of HFPV. Mean values of fraction of inspired oxygen (FiO_2), pH, partial pressure of O₂ in arterial blood (PaO_2), partial pressure of CO₂ in arterial blood ($PaCO_2$), HCO₃, oxygen saturation in arterial blood (SaO_2), PaO_2/FiO_2 , and peak inspiratory pressure were compared. Significant improvement in oxygenation was reflected by increases in SaO_2 , PaO_2 , and the PaO_2/FiO_2 ratio in the first 24 hours of HFPV. No significant increase in peak inspiratory pressure was documented by conversion from conventional ventilation to HFPV. No hemodynamic changes directly associated with HFPV were noted. Seven of ten patients failing conventional ventilation survived to hospital discharge after salvage therapy with HFPV. We advocate further studies of HFPV in non-burn patients with ARDS both as salvage therapy and as replacement for conventional ventilation for the initial treatment for ARDS.

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