



High-Frequency Percussive Ventilation Using the VDR-4 Ventilator: An Effective Strategy for Patients with Refractory Hypoxemia.

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High-frequency percussive ventilation (HFPV) has been used for patients with severe respiratory compromise refractory to conventional mechanical ventilation. It frequently results in equivalent or improved oxygenation and ventilation at lower peak pressures than conventional ventilation, thus minimizing secondary ventilator-associated lung injury. The only ventilator currently available that delivers HFPV is the volume diffusive respirator (VDR-4; Percussionaire Corp, Sandpoint, Idaho). High-frequency percussive ventilation is delivered via a pneumatically powered, pressure-limited, time-cycled, high-frequency flow interrupter and provides small tidal volumes with 300 to 700 oscillations per minute. Following transition to HFPV, respiratory status often stabilizes or improves within a few hours. The unique gas flow mobilizes significant volumes of pulmonary secretions, further facilitating gas exchange. This article reviews the operating principles of HFPV, the functional components of the VDR-4, and the special nursing care considerations to include sedation, hemodynamic assessment, skin and oral care, nutrition, and weaning from ventilation.

PMID: 23095962

[AACN Adv Crit Care](#) - 2012 Oct; 23(4):370-80.



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