



The Protocolized Use of High Frequency Percussive Ventilation (HFPV) for Adults with Acute Respiratory Failure (ARDS) Treated with Extracorporeal Membrane Oxygenation (ECMO).

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ABSTRACT:

Historically, patients on ECMO for ARDS have received ventilatory 'lung rest' with conventional or high frequency oscillating ventilators. We present a series of adults treated with high frequency percussive ventilation (HFPV) to enhance recovery and recruitment during ECMO. Adult respiratory patients, treated between JAN 09 and DEC 12 were cared for with a combination of standard ECMO practices and a protocol of recruitment strategies including HFPV. Data are reported as mean \pm SEM, percentage or median. Comparisons are made by Chi square for categorical variables and by T-test and Mann-Whitney test for continuous variables. Significance is noted at the 95% confidence level ($p < 0.05$). There were 39 HFPV patients. They were 39.9 ± 2.2 years of age and had 3.0 ± 0.37 days of mechanical ventilation prior to the initiation of ECMO. Their pre ECMO PaO_2 to FiO_2 ratio (PF ratio) was 52.3 ± 3.0 and their pCO_2 was 50.22 ± 2.4 . HFPV patients required a mean of 143.1 ± 17.6 hours and a median of 106 hours (range 45.75-350.25) of ECMO support and had a 62% survival to discharge. The post ECMO PF ratio in the HFPV cohort was 301.8 ± 16.7 . A protocolized practice of active recruitment that includes HFPV is associated with reduced duration of ECMO support in adults with respiratory failure.

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