HIGH FREQUENCY OSCILLATORY VENTILATION IN BURN CARE - OUR EXPERIENCE (201)

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Introduction: High frequency oscillatory ventilation (HFOV) has been shown to be non-beneficial in Adult Respiratory Distress Syndrome (ARDS) in the general intensive care patient population. However, its role in smoke inhalation and large burn injury remains controversial. Previous studies have found that HFOV can be a useful rescue ventilation strategy in burn patients with acute respiratory distress syndrome and was safe, whilst others suggested that it made no difference in mortality outcomes. Practices instigating HFOV varies. However, as one of the largest burns unit we have our own protocol triggering its use. This study aims to examine the role of HFOV in a regional burns unit intensive care in the management of the burns population.

Methods: A 5 year retrospective review of all patients admitted to the burn intensive care was conducted using case notes and information stored on Metavision database. Of the 17 patients identified through the database, one was excluded as they had HFOV treatment prior to a late transfer to our unit. Information was collected on patient demographics, burn demographics, presence of smoke inhalation, and comparison of use against the local protocol, associated complications and survival outcomes.

Results: Male to female ratio was 13:3. Age range was 21 years to 75 years (median = 47 years). Total body surface burn area % (TBSA) ranged from 6 to 85 (median = 44.5). Mode of injury included flame (13), scald (2) and electrical (1). Range of Modified Baux score was 28 to 162, median = 103.5. 10/16 (62.5%) patients had smoke inhalation confirmed on bronchoscopy. Average presenting MOD score = 8.6. Indications of HPOV were for ARDS or refractory hypoxia (11), ventilation difficulties/ hypercarbia (4) and ventilation difficulties secondary to fluid overload (1). 13/16 had widespread pulmonary infiltrates visible on plain films prior to commencing HFOV. Median PaO2/FiO2 at commencement of HFOV was 99.105 (range 39 to 99). Median PaO2/FiO2 at 24 hours was 182.43 (range 131 to 313). 87.5% had HFOV as rescue strategy whereas in 12.5% it was initiated as a prophylactic measure. 12.5% (2/16) developed complications associated with initiation of HFOV. MOD scores did not improve after 24 hours. Survival ratio was 3/14 (21%) in the rescue strategy group and 50% (1/2) in the prophylactic group.

Conclusion: From our experience, HFOV improves PaO2/FiO2 initially but does not appear to improve outcome significantly in the large burn cohort with or without associated inhalational injury. Earlier initiation of HFOV may yield better outcomes. The large amount of fluid required in the first 48 hours could be a reflection of severe capillary leakiness and propensity for third space losses associated with systemic inflammatory response of burns. Further studies exploring the relationship between fluid resuscitation and the timing of initiation of HFOV with mortality risks in burns is needed.