Physiotherapy Resource Needs of Severe Respiratory Failure Patients

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Background

• Severe respiratory failure associated with Influenza A (H1N1) during winter 2010/11 led to increased demand for ECMO & HFOV services across the UK.

• Patients requiring advanced ventilatory support provide unique challenges to the delivery of physiotherapy due to their severity of illness.

• There is limited published literature describing physiotherapeutic strategies during AVS.

• Over the past two years, UK services have been commissioned to provide AVS.
Aims & Objectives

• To describe the clinical and resource demands for physiotherapy of patients with SRF who required AVS

• To inform future clinical strategies and service/workforce planning.
Methodology

• Retrospective case note review

• All patients receiving ECMO and/or HFOV from 25/12/10 - 25/2/11.

• Data regarding physiotherapy activity during patients' ICU stay was collected including:
  • frequency, type and duration of interventions,
  • staff grade delivering the interventions
  • whether the patient was receiving ECMO or HFOV at the time of intervention.

• Intervention activity was categorised as respiratory, rehabilitative or indirect.
Results

13 SRF patients
519 Physiotherapy interventions

During ECMO
172 (33%)

- Indirect Interventions
  58 (34%)
  - Respiratory
    106 (93%)
    - Suctioning (97%)
    - Saline Lavage (90%)
    - Supine Head down (68%)
    - Thoracic Vibs (67%)
    - VHI (40%)
  - Rehabilitation
    57 (50%)
    - Passive ROM (98%)
    - Splinting (14%)

- Direct Interventions
  114 (66%)
  - Respiratory
    106 (93%)
    - Suctioning (98%)
    - Saline lavage (98%)
    - Supine head down (94%)
    - Manual Assisted Cough (83%)

During HFOV
102 (20%)

- Indirect Interventions
  46 (45%)
  - Respiratory
    52 (93%)
    - Suctioning (98%)
    - Saline Lavage (98%)
    - Supine head down (94%)
  - Rehabilitation
    28 (50%)
    - Passive ROM (96%)
    - Splinting (4%)

- Direct Interventions
  56 (55%)
  - Respiratory
    113 (68%)
    - Suctioning (95%)
    - Saline Lavage (81%)
    - Positioning (67%)
    - Thoracic Vibs (44%)
    - Assist Cough (14%)
    - VHI/MHI (9%)

Off AVS
245 (47%)

- Indirect Interventions
  79 (32%)
  - Respiratory
    113 (68%)
    - Suctioning (95%)
    - Saline Lavage (81%)
    - Positioning (67%)
    - Thoracic Vibs (44%)
    - Assist Cough (14%)
    - VHI/MHI (9%)
  - Rehabilitation
    101 (61%)
    - Passive ROM (47%)
    - SOEOB (44%)
    - Active Exercises (31%)
    - Standing (19%)
    - Walking (4%)

- Direct Interventions
  166 (68%)
  - Respiratory
    101 (61%)
    - Passive ROM (47%)
    - SOEOB (44%)
    - Active Exercises (31%)
    - Standing (19%)
    - Walking (4%)
Physiotherapy Interventions Following AVS

![Graph showing the correlation between days of advanced ventilatory support and physiotherapy interventions. The graph indicates a positive linear relationship between the two variables.](image-url)
## Resource Demands

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<tbody>
<tr>
<td><strong>ECMO</strong></td>
<td>Band 7</td>
<td>30 hours</td>
<td><strong>£685</strong></td>
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<td>Highly Specialised</td>
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<tr>
<td><strong>HFOV</strong></td>
<td>Band 7</td>
<td>19 hours</td>
<td><strong>£434</strong></td>
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<tr>
<td><strong>AVS</strong></td>
<td>Band 7</td>
<td>24 hours</td>
<td><strong>£550</strong></td>
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Conclusions

• Patients with SRF had specific physiotherapy needs, delivered by highly specialised, experienced physiotherapists.

• Patients receiving ECMO required greater physiotherapy resource than those receiving HFOV.

• Physiotherapy resource requirements and associated costs should be included in the future planning and development of advanced ventilation services.
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