Respiratory tests for people with MND

Respiratory muscle weakness eventually affects most people with MND, and ventilatory failure is the most common cause of death.

Respiratory function tests should be taken as a baseline at initial diagnostic assessment and then every 2/3 months after that unless there are signs of respiratory impairment, a rapid rate of progression of MND or in response to a person’s preference/circumstances.

Table 1

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Signs</th>
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<tbody>
<tr>
<td>Breathlessness</td>
<td>Increased respiratory rate</td>
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<tr>
<td>Orthopnea</td>
<td>Shallow breathing</td>
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<tr>
<td>Recurrent chest infections</td>
<td>Weak cough</td>
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<tr>
<td>Disturbed sleep</td>
<td>Weak sniff</td>
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<tr>
<td>Non – refreshing sleep</td>
<td>Abdominal paradox</td>
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<tr>
<td>Nightmares</td>
<td>Use of accessory muscles of respiration</td>
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<tr>
<td>Daytime sleepiness</td>
<td>Reduced chest expansion on maximal inspiration</td>
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<tr>
<td>Poor concentration and/or memory</td>
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<tr>
<td>Confusion</td>
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<td>Hallucinations</td>
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<tr>
<td>Morning headache</td>
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<tr>
<td>Fatigue</td>
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<tr>
<td>Poor appetite</td>
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</table>

FVC - Forced Vital Capacity
VC - Vital Capacity
SNIP - Sniff Nasal Inspiratory Pressure
MIP - maximum inspiratory pressure
Routine Respiratory Monitoring

**Pulse Oximetry**
FVC/VC +/- SNIP/MIP

**Signs and Symptoms of respiratory impairment** – see Table 1 on previous page

**Blood gas analysis**

- **PaCO$_2$** (partial pressure of carbon dioxide) >6 kPa refer to respiratory ventilation service urgently – within 1 week
- **PaCO$_2$** ≤6 kPa Monitor and make routine referral to local ventilation team as per local service guidance.
- **PaCO$_2$** >6 kPa + signs and symptoms of respiratory impairment (Table 1)

**Respiratory ventilation service**
Nocturnal oximetry/capnography

**Overnight studies normal** Monitor and make routine referral to local ventilation team as per local service guidance.

**Essential discussion with patients, and carers (if appropriate):**
- impact of respiratory impairment and treatment with the person and family and carers (if appropriate)
- if applicable explain reasons for and implications of an urgent referral
- care needs
- capacity
- patient wishes
- end of life issues

**If SpO$_2$ <92%**
(if there is also lung disease)
or <94%
(if there is no lung disease)

**If SpO$_2$ >92%**
(if there is also lung disease)
or >94%
(if there is no lung disease) + signs and symptoms of respiratory impairment (Table 1)

**FVC or VC 50%**
of predicted value
Or
FVC or VC 80% of predicted value + signs and symptoms of respiratory impairment (Table 1)

**SNIP or MIP <40 cmH$_2$O**
SNIP or MIP <65 cm H$_2$O for men
or 55 cm H$_2$O for women
+ signs and symptoms of respiratory impairment (Table 1)