An Evaluation of Intermittent Compression for the Treatment of the oedematous arm in hemiplegic stroke 73

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Introduction
Oedema of the hemiparetic arm following a hemisphere stroke is a recognised phenomenon. Intermittent pneumatic compression (IPC) is employed on an empirical basis in stroke patients. This study aims to evaluate the efficacy of IPC in patients with oedema of the hemiparetic arm.

Method
Thirty seven patients with a first ever hemisphere stroke were randomised to treatment either with standard physiotherapy alone (17 controls) or with standard physiotherapy combined with IPC (20 treated). All patients had oedema of the hemiparetic arm as measured by a water displacement method. Patients randomised to IPC received this treatment for four hours per day for the duration of a month. Hand volumes were measured weekly in both groups during the four week treatment period. To assess the impact of treatment on function, the Motricity Index was measured at the same time as hand volume.

Results
Treated group: there was no change in the mean stroke hand volume following treatment p=1.0. Control group: there was a decrease in the mean stroke hand volume of 3.2mls p=0.69. There was no statistical difference between the groups p=0.65. The median scores for the Motricity Index increased significantly in both groups.

Conclusion
IPC at the prescribed pressure and duration of the study is not an effective treatment for the oedematous arm

THE ORAL FLORA OF STROKE PATIENTS 74

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Patients following strokes may develop aspiration pneumonia due to Gram-negative bacteria. The purpose of this study was to determine if the oral flora was changed in such patients and whether this could be a source of Gram-negative micro-organisms.

Methods: 21 patients 4 weeks post-acute stroke were studied. Saliva rinse samples were taken at 3 consecutive weekly intervals and total quantitative counts made of the Gram-negative aerobic and facultative bacteria present. Bacterial species were also identified. These were compared to age and sex matched controls.

Results: Gram-negatives were found in 42% in the test group and in only 23% of controls (p = NS). The mean count of aerobic Gram-negative bacteria in the stroke group was 5.9 colony forming units ml⁻¹ (cfu) and in one of the control group 0.10 cfu ml⁻¹. The Gram-negative and aerobes and facultatives included Klebsiella, Citrobacter, Proteus, Hafnia, Enterobacter and Eschirichia, species.

Conclusions: Gram-negatives are occasionally found in the oral flora of healthy elderly people but frequently (42%) in patients post-stroke. Additionally, bacterial Gram-negative counts were much higher in patients. The clinical significance will be ascertained only after follow-up to determine any episodes of Gram-negative pneumonia that occur during rehabilitation.

PLASMA ESTERASES AND STROKE: SURVIVORS COMPARED WITH THOSE WHO DIED 75

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Introduction
Plasma esterases are a group of enzymes involved in drug metabolism, whose activities have been found to be reduced in frail compared with fit older people. Uncomplicated stroke by contrast seemed to have little effect on these enzymes. In this study, we have examined the relationship between stroke outcome and esterase activities by comparing patients who survived their stroke with those who succumbed.

Methodology
Twenty-seven patients presenting within 24 hours of acute hemiparesis were studied. Of these, 19 survived for 2 months; 8 died before this time. Blood was taken for esterase measurement on admission (day 1) and on days 3, 8 and 2 months. Four esterases were measured in plasma: aspirin esterase, butyrylcholinesterase, acetylcholinesterase and benzoylcholinesterase.

Results
In survivors, no change was seen in the activity of any esterase over the course of the study. There was no significant difference in baseline activity between survivors and those who died. However, in the case of all esterases, activity fell over the initial 8 days in those who succumbed. As an example, the table shows butyrylcholinesterase activities (mean±SEM) in the two groups.

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 3</th>
<th>Day 8</th>
<th>2 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survivors</td>
<td>7.88±0.39</td>
<td>7.49±0.35</td>
<td>7.39±0.42</td>
</tr>
<tr>
<td>Died</td>
<td>7.41±0.63</td>
<td>6.4±0.6</td>
<td>5.68±0.52</td>
</tr>
</tbody>
</table>

Conclusion
Plasma esterases fall after acute stroke only in those destined to die. This may be related to the severity of the stroke itself, or to other pre-morbid events such as infection or poor nutrition.