

NMES: Transcutaneous electrical stimulation of intact peripheral nerves that innervate the paretic muscle, with the aim of achieving muscle contraction.

Ampcare Effective Swallowing Protocol (ESP) is the trade name for a specific NMES protocol, which combines electrical stimulation with swallowing exercises against resistance. Treatment is typically delivered in a block of 20 sessions over 4 weeks.

Evidence: NMES was first given FDA approval as a treatment for dysphagia in the USA in 2001. In the UK NICE guidance IP490 (Transcutaneous neuromuscular electrical stimulation for oropharyngeal dysphagia) was published in 2014. There has been growing interest and literature into NMES, most recently a pilot RCT published in the International Journal of Language and Communication Disorders (Spronson et al) which showed clinically meaningful treatment trends for Ampcare ESP.



Case Study

Referral: male, age 75, right MCA and internal capsule infarct; oro-pharyngeal dysphagia; no medical contra-indications; cognitively / linguistically able to participate in treatment; severe dysarthria; at one month post-stroke, absent swallow and NGT dependent.

Consent: written (patient information sheet), verbal and video demonstration given to ensure informed consent. Patient gave written consent at the start of the treatment block and verbal consent in each session.

PROCEDURE

- Treatment carried out in therapy room within the hospital setting
- Electrodes placed on the suprahyoid musculature (anterior digastric, geniohyoid, mylohyoid).
- 20 sessions carried out by accredited SLTs over 5 weeks.
- Duty cycle: 5 secs stimulation / 25 secs rest. Increased to 5 /15 to increase the frequency of contraction per session.
- Swallow exercises attempted during stimulation but patient found this difficult to achieve.
- Spontaneous swallows observed by session 8 and oral trials introduced at session 13.



ASSESSMENT

| | Pre Treatment block | Immediately post treatment block | 4 weeks post treatment |
|--------------------------------------|---|--|--|
| Bedside swallow assessment | Poor oral hygiene, significantly reduced sensation throughout oro-pharynx, absence of swallow and need for nil-by-mouth status. | Mildly prolonged oral phase, delayed swallow trigger, slow but complete laryngeal elevation. Occasional difficulties initiating swallow, some improvement in sensation. Patient able to take up to 20 half teaspoons of stage 2 water. No adverse signs. | Significantly improved oral hygiene. Slight oral thrush evident. |
| Cranial nerve assessment | Damage to V, VII, IX, X, XI, XII (oral and pharyngeal stages affected) | Damage to VII, XII (oral stage affected) | Damage to VII, XII (oral stage affected) |
| Functional Oral Intake Scale | 1 | 3 | 4 |
| Quality of Life Questionnaire | Patient described the problem as moderate/severe. | Little change indicated as limited oral intake was not sufficient to improve quality of life. | Quality of life much improved. Described problem as mild. |

OUTCOME

Before treatment the patient was unable to trigger a swallow or manage his own secretions. 4 weeks post treatment he is taking full puree meals and stage 2 thickness drinks. Alternative feeding is no longer required.

NMES created a passive laryngeal movement to replicate a swallow, which then became under voluntary control as the treatment sessions progressed. Regular dry swallows and the introduction of oral trials of thickened fluid have since provided frequent opportunities to practice and strengthen the patient's swallow. His swallow is now prompt and complete.

The treatment set out to improve laryngeal elevation in order to produce a safe and effective swallow. The treatment was successful in achieving this goal. The patient now has the potential in the future to take oral diet and fluid without the need for alternative feeding. His goal is to eventually have normal diet and normal fluids.