Nursing, Midwifery and Allied Health Professions Research Unit

Abdominal Massage for neurogenic bowel dysfunction in people with multiple sclerosis

Background:

Bowel dysfunction is common in people with multiple sclerosis (PwMS).

The causes are multifactorial and include:

- Decreased mobility,
- Polypharmacy,
- Childbirth in females
- Decreased rectal sensation
- Defaecation dynamics – increased anorectal tone
- Decreased colonic transit time
- Decreased abdominal pressure

An April 2017 report identified that emergency admissions (many preventable) to hospital for PwMS has increased by 12.7% over the two years 2015/16, with overall admissions for bladder and bowel related issues costing £10.4m in 2015/16.

Current treatment options are limited, poorly evaluated and complex. There was some limited evidence that abdominal massage may be beneficial in some patient populations. A feasibility study had indicated it was possible to undertake a randomized controlled study in PwMS which would provide evidence relating to effect and cost effectiveness.

Objective:

The objective of AMBER was to determine if abdominal massage, undertaken by a carer or the patient themselves, is an effective and cost effective treatment of constipation in people with MS.

Methods:

A parallel group RCT recruiting 200 participants. One group received advice on good bowel management, the second group received advice plus training in the abdominal massage technique. Each participant received one hour of face to face contact with the clinician. It was recommended that the abdominal massage, which took 20 minutes to perform, was undertaken daily during the 6 weeks of intervention.

A process evaluation followed a longitudinal, case study design which explored:

1) fidelity to the implementation
2) implementation contexts
3) intervention optimisation and sustainability

An economic evaluation of the interventions from a societal perspective was also undertaken.

Findings:

Outcome measures were undertaken at base-line, at 6 weeks i.e. after the intervention was complete and at 12 weeks.

Outcomes included a 3 day bowel diary and the Neurogenic Bowel Dysfunction Score. The Process evaluation included 40 interviews with participants, 42 with clinicians at various time-points and interviews with key stakeholders.

Primary outcome

At baseline, for the intervention group, the mean total NBDS was 7.6 points (SD 5.31 points) and for the control group it was 8.6 points (SD 5.08 points). At week 24, the mean total NBDS was 7.4 points (SD 5.23 points) for the intervention group and 8.7 points (SD 5.70 points) for the control group. The mean difference in change of NBDS between groups was not statistically significantly different for the total score in our primary outcome measure at 24 weeks (–1.61 points, 95% CI –3.32 to 0.04 points; p=0.0558).

Secondary outcomes

The mean frequency of stools passed per week at baseline in the intervention group was 3.9 (SD 1.68), and for the control group it was 4.0 (SD 1.74) stools passed per week. At week 24, the frequency of stools passed per week for the intervention group was 4.3 (SD 1.88) and for the control group it was 3.9 (SD 1.89). This was a significant mean difference in change between the groups of 0.62 stools per week (95% CI 0.03 to 1.21 stools per week; p=0.039).

There was no significant difference in the mean change between groups in time spent on the toilet or the number of attempts to pass stool at week 24: –3.35 minutes (95% CI –23.1 to 16.4 minutes; p=0.7377) and 1.14 attempts (95% CI 0.92 to 3.19 attempts; p=0.2770).

There was a significant difference in the mean change between groups in the number of times the participants felt that they had successfully emptied their bowel at week 24 (1.08 times, 95% CI 0.41 to 1.76 times; p=0.002), with the intervention group showing greater effect.

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Process evaluation
From the intervention group, 20 participants were interviewed twice: at baseline and at the end of the intervention period. The recordings were transcribed and then supported by NVivo, version 10 (QSR International, Warrington, UK). All 20 completed the study, with 15 reporting benefits such as increased frequency of stools and feeling complete evacuation more often. Other benefits not recorded by trial measures represented important improvements in quality of life for participants, including increased appetite, greater energy, better sleep and greater control over bowel function.

Economic evaluation
A cost–utility analysis was conducted from a NHS and patient cost perspective. The mean incremental cost for the intervention group compared with the control group was £56.50 (95% CI –£372.62 to £415.68). The incremental gain in quality-adjusted life-years (QALYs) was –0.002 QALYs (95% CI –0.029 to 0.027 QALYs). Given these results, the intervention appears to be dominated by the control group.

Conclusions:
Abdominal massage is a non-invasive, non-pharmacological intervention. Although the increment in the primary outcome favoured the intervention group, it was small and not statistically significant, and the economic analysis identified that the intervention was dominated by the control group. Given the small improvement in the primary outcome, but not in terms of QALYs, a low-cost version of the intervention, for example as part of a self-management pathway, might be considered worthwhile by some patients. Some secondary outcomes were in favour of the intervention and reached statistical significance with 15 out of 20 interviewees reporting improvements.

Additional research is required to further establish validated outcome measures in this population, as well as further mechanistic investigations.

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AMBER team:

NMAHP RU Glasgow Caledonian University: Doreen McClurg, Kirsteen Goodman, Suzanne Hagen, Selina Doran
NMAHP RU University of Stirling: Fiona Harris
Centre for Healthcare Randomised Trials (CHaRT), Health Services Research Unit: Shaun Treweek
Adult Nursing, King's College London: Christine Norton, Maureen Coggrave
Edinburgh Clinical Trials Unit, The University of Edinburgh: John Norrie
Tayside Clinical Trials Unit, University of Dundee: Petra Rauchhaus, Peter Donnan
National Hospital for Neurology and Neurosurgery, University College London: Anton Emmanuel
Yunus Centre for Social Business and Health, Glasgow Caledonian University: Sarkis Manoukian, Helen Mason

Contact details:

General contact Stirling:
Unit 13 Scion House
University of Stirling Innovation Park
Stirling
FK9 4NF

01786 466341

nmahp.ru@stir.ac.uk

General contact GCU:
6th floor Govan Mbeki Building
Glasgow Caledonian University
Cowcaddens Road
Glasgow
G4 0BA

0141 331 8100

nmahpruadmin@gcu.ac.uk

Twitter: @nmahpru

www.nmahp-ru.ac.uk