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CONNECTIVE TISSUE MANIPULATION VERSUS ABDOMINAL MASSAGE FOR THE TREATMENT OF CONSTIPATION: A RANDOMIZED CONTROLLED TRIAL

Hypothesis / aims of study

Chronic constipation is a common problem involving decreased bowel movements and insufficient defecation. In the management of chronic constipation, there are several manipulative therapy approaches including connective tissue manipulation (CTM) and abdominal massage. CTM is a manual reflex therapy which produces autonomic responses via cutaneo-visceral reflexes. It is known that stimulation of segmental reflexes can be used in treatment of organ dysfunctions including constipation (1). Studies also indicated that abdominal massage may increase frequency of bowel movements, and decrease pain, sensations of abdominal swelling and fullness by stimulating parasympathetic activity (2). However, the published data is not sufficient to prove that which type of massage therapy is more effective in improving symptoms of constipation. There is only one case report which compares the effectiveness of CTM and abdominal massage in constipation (3). Therefore, the primary aim of this randomized controlled trial (RCT) was to compare the effects of CTM and abdominal massage in patients with chronic constipation.

Study design, materials and methods

This was a prospective, assessor-blinded RCT. The eligibility criteria for the study were being over 18 years of age and having constipation according to Rome III diagnostic criteria. Exclusion criteria were neurological, metabolic or malignant diseases, pregnancy, mental problems preventing cooperation, history of gastrointestinal or abdominal surgery, comorbid colonic conditions and abdominal hernia. Patients taking laxatives were excluded or were asked to discontinue the drug two weeks before enrollment. Participants were randomly allocated by the therapist using computer generated block randomization procedure to CTM (n=15), abdominal massage (n=15) or control group (n=15).

The interventions (CTM and abdominal massage) were applied five days per week for four weeks by trained physiotherapists (first and second author). Each treatment session lasted approximately 15 to 20 minutes. CTM procedure consisted of short and long tractions which performed to lumbosacral, lower thoracic, scapular, interscapular and cervical regions. During CTM treatment, patients were in sitting position with 90° of hip and knee flexion to provide optimal tension for connective tissue. Abdominal massage was applied using the Swedish technique. The procedure included abdominal stroking, colon stroking and colon kneading. Patients were positioned in supine with knees supported with a thin pillow to loosen the abdominal area. All patients in CTM, abdominal massage and control groups were also given lifestyle advices such as increasing fluid and fibre intake, improving physical activity level, and taking the ideal posture for defecation (squatting position).

All assessments were performed at baseline and immediately after the treatment by the same experienced physiotherapist (third author), who was blinded to the group allocation. Constipation Severity Instrument (CSI) was the primary outcome measure. Quality of life, stool consistency and symptoms of constipation were evaluated with Patient Assessment of Constipation Quality of Life Questionnaire (PAC-QOL), Bristol Stool Scale (BSS) and 7-day bowel diary, respectively.

The data were analyzed by using SPSS version 21. Descriptive analyses were presented as median (interquartile range, IQR) for the non-normally distributed data and as number (percentage) for categorical variables. Differences between groups were analyzed with Kruskal-Wallis test for quantitative data and Chi-Square test for categorical variables.The Mann-Whitney U test was performed to test the significance of pairwise differences using Bonferroni correction when an overall significance was observed in quantitative data. Statistical significance level was assumed at $p<0.05$.

Results

41 female and 4 male patients (mean age: 37.9±13.5 years, mean BMI: 26.6±6.9 kg/m^2, average duration of complaint: 6.4±3,9 years) completed the study. When three groups were compared, no statistically significant differences were found between groups in terms of demographic characteristics and outcome measures at baseline ($p>0.05$). There were also no significant differences in compliance with the lifestyle advices among patients in the three study groups ($p>0.05$).

There were statistically significant differences in changes of CSI, PAC-QOL total and subscale scores, BSS, defecation frequency, duration of defecation, stool type and feeling of incomplete evacuation between three groups ($p<0.05$). The improvements observed in the CTM and abdominal massage group were significantly greater than the control group in terms of CSI, PAC-QOL, BSS scores and symptoms of constipation. But, there was no statistically significance in all outcome measures between CTM and abdominal massage groups according to pairwise analysis ($p>0.016$), (Table 1).

Interpretation of results

This is the first RCT comparing the effects of CTM and abdominal massage in the treatment of chronic constipation. Compared with control group (only lifestyle advice), patients in both CTM or abdominal massage groups showed greater improvement in symptoms of constipation such as frequency of defecation, duration of defecation, stool consistency, feeling of incomplete evacuation and QoL. However, there was no statisticaly significant difference between the changes from baseline to final visit in two treatment arms.

Table 1. Comparison of changes in primary and secondary outcome measures between CTM, abdominal massage and control group.

	CTM Δ1	Abdominal massage Δ2	Control Δ3	p_1	p_2
CSI (total)	13(9-17)	14(9-17)	3(2-5)	<.001*	.81
Obstructive Defecation	5(3-7)	3(1-5)	1(0-2)	0.004*	.17
Colonic Inertia	5(2-10)	7(2-9)	1(0-2)	<.001*	.42
Pain	2(1-4)	3(2-3)	1(0-1)	<.001*	.46
PAC-QOL (total)	14(7-21)	10(7-14)	3(2-6)	<.001*	.19
Physical Discomfort	3(2-6)	4(3-6)	1(1-3)	<.001*	.32
Psycho-social Discomfort	5(2-11)	4(3-5)	1(1-2)	<.001*	.22
Worries/Concerns	9(6-14)	6(4-10)	2(0-4)	<.001*	.22
Satisfaction	7(2-10)	5(4-6)	1(0-3)	<.001*	.30
BSS	2(1-3)	1(0-3)	0(0-1)	.002*	.26
Defecation frequency/week	3(1-4)	2(1-3)	0(0-1)	.001*	.28
Duration of defecation (min)	4(2-8)	5(2-7)	0(0-4)	.021*	.96

Values are presented as median (IQR). Δ1, Δ2, Δ3 differences between baseline and last visit.
p_1 : Kruskal-Wallis test, p_2 : Mann-Whitney U test between CTM and abdominal massage groups. CSI: Constipation Severity Instrument, PAC-QOL: Patient Assessment of Quality of Questionnaire, BSS:Bristol Stool Scale

Concluding message

In accordance with limited literature, both CTM and abdominal massage techniques are effective physiotherapy approaches in alleviating constipation-related symptoms. When comparing the effectiveness of these reflex and mechanical massage techniques, they are similar. Therefore, considering the patient characteristics, more suitable one of these treatment methods may be selected and these two methods can be used as an alternative of each other. Studies with long-term follow-up are needed to determine the sustainability of effects.

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