23 (2015) 685–692

Contents lists available at ScienceDirect

Complementary Therapies in Medicine

journal homepage: www.elsevierhealth.com/journals/ctim

A randomised, controlled, single-blinded study on the impact of a single rhythmical massage (anthroposophic medicine) on well-being and salivary cortisol in healthy adults

Jenny Lena Kanitz[a], Marcus Reif[b], Carolina Rihs[a], Ingrid Krause[a], Georg Seifert[a,*]

[a] Department of Paediatric Oncology and Haematology, Task Force Integrative Medicine in Paediatric Oncology, Charité – Universitätsmedizin, Berlin, Germany
[b] Institute for Clinical Research (IKF Berlin), Germany

ARTICLE INFO

Article history:
Received 21 June 2013
Received in revised form 25 July 2015
Accepted 27 July 2015
Available online 31 July 2015

Keywords:
Rhythmical massage
Sham massage
Well-being
Mood
Alertness
Relaxation

ABSTRACT

Background: Rhythmical massage (RM) has evolved from classical massage and is based on the principles of Anthroposophic medicine. The goal of this randomized, single-blinded study was to assess the efficacy of a single RM intervention with either aroma oil (RA) or a neutral oil (RM) compared to a sham massage (SM) on several dimensions of well-being and salivary cortisol in a laboratory setting.
Methods: 118 healthy adults (mean age: 25.2 years; SD: 4.7) were randomized to one of three groups (RM, RA or SM). After baseline measurements, all subjects were exposed to an experimental stressful situation (Trier Social Stress Test, TSST), before receiving a single massage intervention of about 60 min including a 20-minute rest period. Well-being as the main outcome parameter was assessed by standardized questionnaires (MDBF, Bf-S, B-L) and visual analogue scales (VAS) prior to the beginning of the massage and subsequently. Salivary cortisol and heart rate variability (data are shown elsewhere) were also measured.
Results: Participants who received RM or RA showed no statistically significant improvements (MDBF, Bf-S, B-L) compared to the SM group after adjusting for baseline differences observed between the treatment groups. Furthermore, no statistically significant differences were found between the RM and RA groups in any of the analyses. Within a follow-up survey all participants from the RA and 82% from the RM group described the intervention as "relaxing" compared with 42% in the SM group. Salivary cortisol did not differ statistically significantly between the three groups over time.
Conclusions: We found no significant effect within this trial. This may be due to the methodological complexity of massage research and especially the sham-controlled design with only one single intervention examined. The influence of the setting, and the expectations of and interaction between participant and practitioner seem to play a role that needs to be verified. Therefore the true potential of rhythmical massage intervention still needs to be validated.

1. Background

Chronic stress can lead to persistent high levels of cortisol which in turn lead to a reduction in stress coping strategies, stress resistance and overall well-being.[1] Especially psychological factors such as increased stress or depression may negatively influence immune competence.[2,3] It has been shown in psychoneuroimmunological investigations that psychological inputs through body-based therapies or massage can regulate and significantly influence the immune system in various ways.[4,5] Therefore, there is a great interest in additional therapies aimed at stress reduction. Body-based therapies, especially, have become more popular because of their few reported side effects and wide-spread accessibility.[6] One of the oldest and most prominent body-based therapies is massage therapy.[7,8] In 400 B.C., Hippocrates already defined medicine as "the art of rubbing". Today, there are various forms of massage whose implication for stress reduction has already been shown.[7,9–11] The importance of touch in the medical setting

* Corresponding author at: Charité-Universitätsmedizin Berlin, Otto-HeubnerCentrum für Kinder- und Jugendmedizin, Klinik für Pädiatrie mit Schwerpunkt Onkologie/Hämatologie, Augustenburger Platz 1, 13353 Berlin, Germany. Fax: +49 30 450 566 965.
E-mail addresses: jenny-lena.kanitz@charite.de (J.L. Kanitz), Marcus.Reif@ikf-berlin.de (M. Reif), carolina@glueckstueck.ch (C. Rihs), i-krause@web.de (I. Krause), georg.seifert@charite.de (G. Seifert).

http://dx.doi.org/10.1016/j.ctim.2015.07.008
0965-2299/

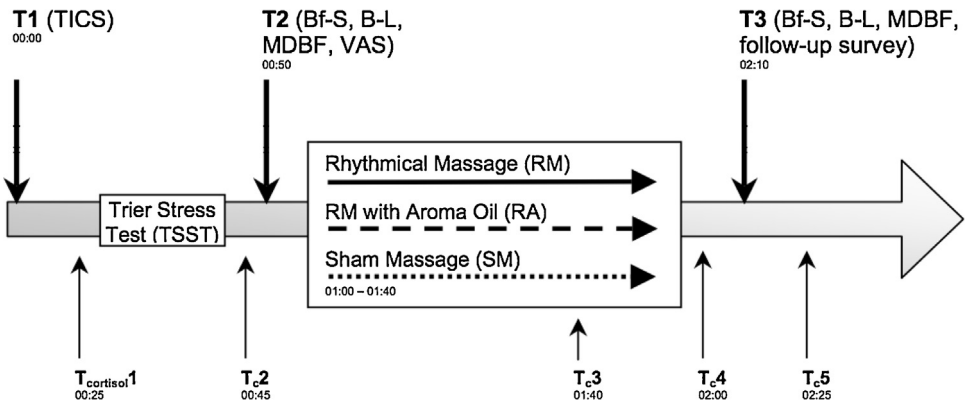

Fig. 1. Flow chart including exact time points of data assessment (TICS: trier inventory for chronic stress; Bf-S: mental state scale; B-L: 24-item list of somatic complaints; MDBF: multidimensional questionnaire on mental state; VAS: visual analogue scales; T: timepoint of data assessment by questionnaire; Tc: timepoint of salivary cortisol measurement).

as well as from a neurological perspective has been mentioned repeatedly.[12] Rhythmical massage (RM) is an expanded form of classical massage developed by Ita Wegman and used in the setting of anthroposophic medicine. RM is based on a holistic understanding of the interaction between body, soul and 'individuality' and goes further than classical massage emphasising mainly the physical effects. RM is characterised by a different understanding of healing through soft and gentle rhythmical touch that stimulates self-healing forces, rather than harder muscle pressure aimed at physical relaxation. It is prescribed for conventional shoulder or neck pain, myalgia, degenerative muscle diseases, chronic and psychosomatic diseases, depression, cancer or pain reduction and is often combined with art therapy.[13]

There have been no randomized controlled trials on the impact of RM to date. One prospective cohort study[13] showed that after 12 months, two-thirds of 85 patients with chronic diseases receiving around 12 massage interventions showed an improvement in symptoms of about 30%. Another cohort study examined the effect of rhythmical embrocation[14] in which oil is applied to the patient's skin with rhythmical gestures. The authors reported that 100 chronic low back pain patients showed improved mood, pain perception and a better ability to cope with pain.[14] Additionally, there are three[15–17] investigations examining the role of RM in nursing care from a phenomenological perspective. There have been no trials assessing the physiological impact of RM to date.

A number of studies exist for classical massage. Improvements of depression, anxiety, sleep quality and pain appeared after a single intervention already.[10,11,18–21] Nevertheless, these trials often lack methodological quality and have no control groups.[19] Underlying mechanisms of massage are widely discussed. The best evidence exists for improvement of the immune system, blood pressure, heart rate variability and a reduction of salivary cortisol during massage.[7,11,19,21–23] Another mechanism postulated[24] is the effect of the interpersonal contact between the massage therapist and the patient. For a better control of this interaction effect, Patterson et al.[19] invented a standardised light-touch sham massage for the control group. The effects might also be explained by the additional use of aroma oil during massage, which stimulates the limbic system via the olfactory route and the skin.[25,26] In RM, in particular, a variety of different oils are used according to the patient's illness and individual preferences. One cohort study examining rhythmical embrocation also used aroma oil and reported promising results on well-being and pain.[14] A multicentre randomised trial concludes that evidence is mixed as to whether aromatherapy enhances the effects of classical massage.[8]

The goal of this first randomised, controlled, single-blinded trial was to evaluate the effects of a single Rhythmical massage intervention on subjective well-being, including mental state and current mood, in healthy adults compared to a sham massage group (SM) in a laboratory setting. Prior to the beginning of the massage, all participants were exposed to a stressful situation –the Trier Social Stress Test according to Kirschbaum et al.[27] Additionally, olfactory effects were assessed through a comparison between RM groups with (RA) and without aroma oil (RM). Participants were blinded to the randomization result and were only informed after the intervention to which group they had been assigned.

2. Methods

2.1. Study design

This study was conducted as a prospective, randomized, three-arm, single-blinded study. After participants had been checked for accessibility through telephone interviewing with the study leader, they were allocated to one of three groups by computer-generated balanced-block randomization with a balanced gender ratio. Participants were blinded to the outcome of the randomization and all expected to receive "one of three different massage forms".

Data assessment took place at the office building of the Charité hospital over a period of three hours in addition to a 24-h electrocardiogram (will be reported elsewhere). Appointments were given between 7am and 11am. First of all the first sample for measurement of salivary cortisol (T_c 1) was collected and participants were asked to complete the baseline questionnaire (T1). Then the Trier Social Stress Test (TSST) was conducted in an adjoining room with two assistants, followed by the second questionnaire (T2). Before (T_c 2) and after 20 min of massage (T_c 3), the second and third salivary cortisol samples were collected. The fourth and fifth salivary cortisol samples were collected after a further 10 min of massage (T_c 4) and 20 min of rest (T_c 5). Finally, participants completed the third questionnaire that included a follow-up survey with open questions (T3). The study was approved by the ethics committee of the Charité –Universitätsmedizin Berlin. Written informed consent was obtained from the subjects.

2.2. Subjects

Participants were recruited through advertising at a university hospital and were required to be between 18 and 40 years old, without physical or psychological diseases and to give written informed consent before their participation. The study leader conducted the screening of the participants through telephone interviewing prior to the randomisation process. Of 123 screened participants, five did not meet the inclusion criteria (Fig. 2). 118 participants were ran-