



Effects of massage therapy on anxiety, depression, hyperventilation and quality of life in HIV infected patients: A randomized controlled trial



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ABSTRACT

Introduction: HIV infection is often preceded or accompanied by psychiatric comorbidities. These disorders improve with complementary therapies. The aim of this study was to measure the effect of massage therapy on anxiety, depression, hyperventilation and quality of life in HIV infected patients.

Method: Adult HIV-infected patients were randomized (n = 29) in massage therapy group (one hour a week during four weeks) and control group. Anxiety and depression (HADS-A and HADS-D), hyperventilation (Nijmegen questionnaire) and quality of life (WHOQOL-HIV) were evaluated at inclusion and after 4 weeks.

Results: At inclusion, 51% and 17% of the patients had a positive HADS-A and HADS-D score respectively. Two facets from WHOQOL-HIV ("Home environment" and "Death and dying" (p = 0.04)) were different between groups. After the four week massage therapy, a significant improvement was observed only for Nijmegen questionnaire (p = 0.01) and HADS-A (p = 0.04) contrarily to WHOQOL-HIV and HADS-D. Domains of the WHOQOL-HIV did not improve following the massage therapy. Only "Pain and discomfort" facet improved after massage therapy (p = 0.04).

Conclusion: This study highlights the positive impact of a four week massage therapy on anxiety and hyperventilation in HIV infected patients. However, neither benefit of this program was observed on depression and quality of life.

1. Introduction

Around 35 million individuals are infected with human immunodeficiency virus (HIV) worldwide.¹ The use of combination of antiretroviral therapy (cART) has dramatically reduced disease progression and death among patients with HIV infection. However, there is still neither definitive cure nor effective vaccine.

HIV infection is often preceded or accompanied by psychiatric disorders. Indeed, higher prevalence of depression and anxiety disorders was reported among patients infected with HIV than in the general population.^{2–5} If hyperventilation was associated to these emotional distress,⁶ it has never been investigated in HIV infected patients.

Psychiatric disorders and others commorbidities have been related to reduced quality of life and increased morbidity and mortality in the

context of aging HIV population.^{7–11} Thus, health related quality of life is a critical element in treatment and care programs of HIV infected patients.^{7,12} Moreover, managing these HIV-related disorders are important because anxiety symptoms and depression among HIV-infected individuals were associated with nonadherence to cART.^{13,14}

A recent study focused on self-care strategies used by patients to manage these comorbidities. They included, among other things, alternative/complementary therapies.³ One of the most popular alternative/complementary therapies is massage therapy that can reset the threshold levels of the baroreceptors of arterial vessels which trigger rise in blood pressure and heart rate.¹⁵

Different publications suggested an improvement in quality of life,¹⁶ depression,¹⁷ and anxiety¹⁸ after massage therapy in people living with HIV/AIDS even if stronger evidences are needed to support its use.¹⁹ Surprisingly, the effect of massage on hyperventilation has never been

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evaluated.

The aim of this study was to compare in a randomized controlled study the effect of a 4 week massage therapy on anxiety, depression, hyperventilation and quality of life in HIV infected patients.

2. Material and method

2.1. Ethics statement

The study was approved by the regional Ethics Committee in Université catholique de Louvain in Brussels (B403201524761) and registered on ClinicalTrials (NCT02535429). All of the patients provided written informed consent in accordance with the Declaration of Helsinki and with current guidelines for Clinical Good Practice.

2.2. Subjects

HIV-infected patients regularly attending the outpatient infectious disease clinic (Cliniques universitaires Saint-Luc and Clinique Saint-Pierre) were recruited on a voluntary basis and without financial compensation for this study. Consecutive patients fulfilling the inclusion criteria were selected by the physician after approval of the patients to enrol in the study. The study was realized between June and December 2015.

The following inclusion criteria were used: 18 years or older, infected with HIV for at least 6 months,²⁰ followed in our Institution and a native French speaker (patients born in a francophone family speaking French at home and living in the francophone part of Belgium). The exclusion criteria were: unstable (defined by any clinical modification of health outcomes) in the three last months and for the duration of the study, neurological or musculoskeletal disorders.

2.3. Measures

The sociodemographic and HIV-related information's were collected at inclusion.

2.3.1. Anxiety and depression (HADS)

Anxiety and depression were assessed by the validated French version of Hospital Anxiety and Depression Scale (HADS) which is divided in two parts with 7 items for each one: HADS-A (for anxiety) and HADS-D (for depression), respectively.²¹ All items are rated from 0 ("never") to 3 ("very often"). The highest scores indicate a greater frequency of symptoms. The total score of the scale is a measurement of general mental distress. For the HADS-A or HADS-D, the cut-off points were higher than 8 for a borderline anxiety or depression and higher than 11 for anxiety or depression, respectively.

2.3.2. Hyperventilation

Hyperventilation was evaluated by Nijmegen questionnaire (NQ).²² The NQ is the most commonly used screening tool for dysfunctional breathing and specifically for hyperventilation. It includes 16 items related to anxiety symptoms. Frequency incidence of all the items is rated with a five-point ordinal scale (from 1 "never" to 5 "very frequently"). Total score is calculated by adding scores of each item. Cut-off score of 23 have been fixed for this study to identify hyperventilation.

2.3.3. Quality of life (WHOQOL-HIV)

Quality of life was measured by the validated French version of the specific WHOQOL-HIV questionnaire.²³ General health status is evaluated by asking the subjects to rate his or her health on a Likert scale ranging from 1 (very poor) to 5 (very good). WHOQOL-HIV includes 120 items. The structure of the WHOQOL-HIV questionnaire includes a profile with scores across six domains (physical, psychological, level of dependence, social relationships, environment and spirituality) and 29

facets, with 5 of these facets relating to HIV/AIDS (symptoms of person living with HIV/AIDS (PLWHA), social inclusion, forgiveness and blame, concerns about the future, death and dying). Non-specific questions concerning the subject's overall quality of life and health status are also included. All of the items are rated on a five-point scale (from "not at all" to "extremely" for the intensity and capacity domains; from "never" to "always" for frequency; from "very dissatisfied" to "very satisfied" or from "very good" to "very poor" for evaluation). For negatively framed items, the scores are reversed so that the higher the score, the better the quality of life. A score is calculated from the facet and domain. Each item of a facet and facet of a domain contribute equally to the facet and domain scores, respectively.

2.4. Design

At inclusion, all the patients received a package including three questionnaires (WHOQOL-HIV, HADS, Nijmegen). They were asked to fill out these questionnaires (Initial evaluation). They received a second similar package and were asked to fill out these questionnaires after four weeks (Final evaluation). The initial evaluation was compared to the final evaluation. A trained researcher was present to provide assistance in completing the questionnaires if necessary. The patients were randomized in intervention and control groups by a computer generated random number list (www.randomizer.org) with an allocation ratio of 1:1.

During the four weeks, each patient of the intervention group received the massage therapy (one massage session a week) by the same trained physiotherapist who was not a member of the infectious disease clinic. It consisted in a back massage with the techniques of Swedish massage for 30 min with baby oil. The massage was performed in a quiet area from a primary care center. The assessor (GR) was blinded.

2.5. Statistical analysis

The sample size needed for detecting the minimal change (0.5x SD) on HADS-A based on preliminary data with a power of 0.80 was determined ($n = 13$). Statistical analyses were performed using SPSS Statistics 23.0 (IBM Company, SPSS Inc., Chicago, IL, USA). Descriptive data were expressed by mean \pm SD or by median with interquartile range depending on the normality of the distribution. Normality of the distributions was verified by Kolmogorov-Smirnov test. Results were compared by paired Student *t*-test after checking the normality of the distribution. Homogeneity of variances was checked by Levene's test. Significance level was set at 0.05.

3. Results

Among the 45 recruited patients, 29 were enrolled and randomized in the two groups (Fig. 1). The patients who were not included did not want to participate or cannot participate for transportation problems. Fifteen and fourteen patients were included in MT and control groups respectively. One patient did not complete the sessions of massage therapy for familial reason.

The socio-demographic data of the included patients are summarized in Table 1. The age range of the patients was 25–73 years old. The proportion of patients whose CD4+ cell counts were less than 500 cells per microliter or having an undetectable viral load (< 40 copies/mL) was 17%. All the patients were undergoing HAART.

The results of the different questionnaires at inclusion and the comparison between the questionnaires at inclusion and after the study are presented in Table 2 and Table 3, respectively. In our study, 51% of the patients had a higher HADS-A score than the cut-off score for this questionnaire and 20% of the patients presented a HADS-A score higher than 11 which corresponds to an anxiety state. Only one patient had depression (HADS-D > 11) and 17% of patients were borderline (HADS-D between 8 and 11). Two facets from WHOQOL-HIV ("Home

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