Reflexology Technique for Ankle/ Foot Oedema in Late Pregnancy

by Lyndall Mollart

Abstract
This paper presents the findings of 20 non-randomised participants who received lymphatic foot reflexology technique. These women declined to participate in Mollart's (2003) randomised trial investigating reflexology on ankle and foot oedema in late pregnancy.

Background
Oedema is a common and normal physiological symptom in late pregnancy (Enkin, Keirse, Renfrew, Neilson 1995; Reynolds, 2003). Foot and ankle oedema occurs due to the weight of the growing uterus, prostaglandin induced vascular relaxation, and reduced plasma colloid osmotic pressure (Cunningham, McDonald, Gant, Leveno, Gilstrap, Hankins and Clark 1997, Reynolds 2003). While oedema alone is not harmful, it can result in discomfort, feelings of heaviness, night cramps and painful paraesthesia (Young and Jewell 1997).

Varieties of strategies and have been used to control physiological oedema consisting of support stockings, bed rest and diuretics. Studies using pneumatic compression boots (Jacobs, McCance & Steward 1986), water immersion and bed rest (Katz, Ryder, Cefalo, Carmichael & Goolsby 1990; Kent, Gregor, Deardorff & Katz 1994) did not investigate the women's viewpoint regarding any perceived benefits, the feasibility of wearing pneumatic boots or sitting in the bath to sustain the effects.

Young and Jewell (1997) systematic review recommended that further evidence into symptom relief and women's' view of their treatment could be considered the most relevant outcome. Mollart (2003) two year single blind trial investigating the differential effects of two foot reflexology techniques (lymphatic technique and relaxing techniques) versus rest found a significant reduction in the women symptoms. From the women's viewpoint, lymphatic reflexology was the referred therapy with significant symptom relief (Mollart 2003).

Studies have shown that reflexology has the potential to provide pain relief (Degan, Fabris, Vanin, Bevilacqua, Genova, Mazzucco, & Begrisolo 2000) and symptom relief (Oleson & Focco 1993), induce relaxation (Stephenson, Weinrich & Tavakoli 2000) and reduce blood pressure, without harmful side effects (Botting 2000; Frankel 1997). Lymphatic reflexology technique can be used for specific conditions such as leg, foot an generalise oedema as it moves extravascular fluid without disturbing intravascular fluid (Tiran 1996; Enzer 2000). Enzer (2000) proposes that the technique mimics the lymphatic drainage action of the body- interstitial fluid moves from the lymphatic capillaries to the lymphatic veins, to the body trunk and returns into the circulatory system at the subclavian vein.

Method and Analysis
The sample group consisted of women who met the Mollart (2003) study criteria but declined to participate in the randomised study and wanted to receive reflexology. Participants were required to be (1) experiencing a normal pregnancy greater than 30 weeks gestation (2) with visible oedema of ankles and feet (3) able to speak, read and write English, and (4) attending the hospital clinics. The rationale for the gestational criteria was oedema usually occurs in the last 10 weeks of pregnancy (Enkin, Keirse, Renfrew, and Neilsen 1995).

At the antenatal visit, the participants received 15 minutes of lymphatic foot reflexology technique and circumference measurements of ankles, insteps and foot/toe junctions were recorded on plain paper tapes prior to and immediately after receiving reflexology (Mollart 2003). All circumference measurements were collected in the same manner as the randomised trial. The ankle was measured medically and laterally above the malleoli. The instep was measured over the cuneiform and cuboid bones distal to the heel, and the third measurement was the distal end of the foot, at the metatarsal-phalanges joint. Pre and post therapy blood pressure readings were also collected.

Participants completed a self-administered survey containing likert type and open-ended questions regarding age, existing knowledge of reflexology; changes in feet after the therapy; and any perceived

(Continued on page 7)

(Continued from page 6)
benefit of the therapy. The participants also documented pre and post therapy levels of stress, tension, anxiety, irritability and discomfort. As with the randomised trial, grapeseed oil was used for this reflexology technique to prevent friction and possible increased discomfort (Enzer 2000). Grapeseed oil was used as it is absorbed well, non-sticky, odourless and able to be used by those who may suffer from nut allergies (Hulme, Waterman, Hillier 1999; Mollart 2003).

The quantitative data was analysed using Student's t-test to identify differences in blood pressure, circumference measurement and perceived symptoms before and immediately after the reflexology. Content analysis was used for the answers to the open-ended questions in the participant's survey by collating and examined the participant's responses for themes.

Results

A total of twenty (20) women experienced one session of lymphatic foot reflexology technique. Some participants attended more sessions over the study period although ongoing data was unable to be analysed due to the decreasing sample size. The participant's age ranged from 16 to 39 years with median of 28 years (SD 6.36). The participant's pregnancy gestation ranged from 33 to39 weeks gestation with a median of 38 weeks (SD 1.72) and fourteen participants had not given birth before (70%).

All mean circumference measurement except left instep showed a decrease in the post measurements. Both left ankle and right ankle circumference measures showed a statistically decrease as shown in table 1. The blood pressure readings decreased after the completion of the therapy but were not statistically significance (t=0.703, df=19, p=0.48919).

The participant's questionnaire showed a highly sig-

(Continued on page 8)

Table 1: Difference in mean foot measurement across the group (n=20)

Mean measurement changes		p value
Left ankle	-0.18	<0.03389
Left instep	0.0	1.0
Left MPJ	-0.23	0.03
Right ankle	-0.19	<0.0027
Right instep	-0.10	0.389
Right MPJ	-0.14	0.088

(A negative number indicates a decrease in measurement. MPJ= metatarsal phalanges joint)

Table 2: Mean scores of stress, tension, anxiety, discomfort, irritability, pain and tiredness levels before and after lymphatic reflexology technique (n=18)

	Before reflexology	After reflexology	Mean different score	P value
Stress	2.70	1.64	1.06	<0.00017
Tension	2.82	1.65	1.17	<0.00005
Anxiety	2.62	1.75	0.87	<0.00058
Discomfort	3.47	1.94	1.53	< 0.00010
Irritability	2.82	1.70	1.12	<0.00163
Pain	2.65	1.65	1.0	<0.000001
Tiredness	3.70	2.70	1.0	<0.00199

Score= 1 to 5 with 1 denoting no symptoms and 5 denoting considerable symptoms

(Continued from page 7)
nificant decrease in mean measurements of the participant's symptoms of stress, tension, anxiety, pain, tiredness, irritability and discomfort levels as shown in table 2.

Participant's Comments

Seventeen participants responded to the open-ended question on their experience receiving lymphatic foot reflexology technique. The majority (76.5%) of participants commented on feeling of 'relaxed' to 'very relaxed' while receiving lymphatic reflexology technique. Three participants commented on 'feeling good' and two felt 'comfortable'. Fourteen participants responded to the question relating to feelings after experiencing reflexology. Again, over half (57%) felt 'relaxed' to 'very relaxed' and more than one feeling was noted with other comments included 'great', good' and 'revitalised'.

All participants noticed a difference in their feet after receiving reflexology, with the majority (66.6%) noticing a decrease in swelling. Twelve participants felt a combination of less pain, more mobility and increased comfort with one participant commenting "less swelling, more movement, no burning sensation, wonderful".

Discussion

The author's randomised controlled trial (RCT) investigated the differential effects of two foot reflexology techniques versus a period of rest, on ankle and foot oedema in late pregnancy (Mollart 2003). It was interesting that some women chose not to participate in the trial, as they wanted to receive reflexology, despite few having received reflexology before. In addition, some women in the trial after being randomised into the rest group, withdrew for the study so they could receive reflexology (Mollart 2003).

Contrary to the RCT, the findings of this separate sample group indicate that lymphatic foot reflexology technique has a significant effect in reducing ankle but not foot oedema. Further research with a longer session time could be of benefit as other studies have had a 30 minute treatment time (Clausen and Moller 1996; Stephenson et al 2000). Lymphatic reflexology technique significantly assisted women to cope in late pregnancy with a significant reduction in the levels of stress, tension, anxiety, discomfort, irritability, pain and tiredness. As with RCT (Mollart 2003) study, the women experienced an increased feeling of wellbeing, which pregnant women welcome especially when they have swollen painful feet, difficulty in walking and restless sleep. Previous reflexology studies with other population groups have also demonstrated an increase in general wellbeing (Launso, Grendstrup, Arnberg 1999) and a decrease in pain and anxiety (Frankel 1997; Stephenson, Dalton and Carlson 2003).

Participants perceived lymphatic reflexology technique as effective in symptom relief and commented on feelings of profound relaxation during and after receiving reflexology. These findings are consistent with previous reflexology studies, which noted that many of the women receiving reflexology felt very relaxed, sleepy or fell asleep during the reflexology session (Oleson and Focco 1993; Wright, Courtney, Donnelly, Kenny and Lavin 2002). The relaxation response is an integral part of the healing capacity of numerous natural therapies encouraging the release of endorphins, causing analgesic effect and relaxation (McCabe 1996, Tiran and Chummun 2005). The author acknowledges the benefit of touch and the possible placebo effect on symptom relief (Field, Herandez-Reif, Hart, Theakston, Schanberg, & Kuhn 1999; Tiran and Chummun 2005).

In conclusion, although this study was conducted in 1999-2001, I believe the findings are still relevant. The evidence suggests that lymphatic reflexology technique is an effective and safe therapy for pregnant women with foot and ankle oedema in late pregnancy. The results of this study cannot be generalised to other settings such as patients with lymphedema nevertheless further research in this area would be of benefit. It is vital that well-designed studies using appropriate research methods are conducted to further investigate the many benefits of reflexology.

References

Botting, D. 1997. Review of literature on the effectiveness of reflexology. Complementary Therapies in Nursing and Midwifery, 3;123-30.

Cunningham, F., McDonald, P., Gant, N., Leveno, K., Gilstrap, L., Hankins. G., and Clark. S. 1997. William's Obstetrics, 20th ed., Prentice-Hill: Englewood Cliffs, NJ.

(Continued on page 9)

(Continued from page 8)

Clausen, J & Moller, E. 1996. Foot reflex therapy in the treatment of primary inertia during labour. Proceedings 24th Triennial Congress of the International Confederation of Midwives, Oslo.

Degan,M., Fabris, F., Vanin, F., Bevilacqua, M., Genova, V., Mazzucco, M, & Begrisolo, A. 2000. The effectiveness of foot reflexology on chronic pain associated with a herniated disc. Professional Inferm., 53:2:80-7.

Enzer, S. 2000. Reflexology: A tool for Midwives. Soul to Sole Reflexology, Sydney. Australia.

Enkin,M., Keirse, M., Renfrew, M., and Neilsen, J. 1995. A guide to effective care in pregnancy and childbirth, 2nd ed. Oxford: Oxford University Press.

Field, T., Herandez-Reif, M., Hart, S., Theakston, H., Schanberg, S & Kuhn, C. 1999. Pregnant women benefit from massage therapy. Journal Psychosomatic Obstetrics and Gynaecology, 20:1:31-8.

Frankel, B. 1997. The effect of reflexology on baroreceptors reflex sensitivity, blood pressure and sinus arrhythmia. Complementary Therapies Med; 5;80-4.

Hulme, J., Waterman, H., and Hillier, V. 1999. The effect of foot massage on patients' perception of care following laparoscopic sterilisation as day case patients. Journal of Advanced Nursing, August, 30:2:460-8.

Jacobs, M., McCance, K., and Steward, M. 1986. Leg volume changes with EPIC and posturing in dependent pregnancy oedema. Nursing Research, 35,2,86-89.

Katz, V., Ryder, R., Cefalo, R., Carmichael, S., and Goolsby, R. 1990. A comparison of bedrest and immersion for treating the edema of pregnancy. Obstetrics and Gynaecology, 75;2;147-51.

Kent, V., Gregor, J., Deardorff, K., & Katz, V. 1999. Edema of pregnancy: A comparison of water aerobics and static immersion. Obstetrics & Gynaecology, 94: (5, part 1). 726-9.

Launso, L., Grendstrup, E., and Arnberg, S. 1999. An exploratory study of reflexological treatment of headache. Alternative Therapy Health Medicine, 5:3:57-65.

McCabe, P. 1996. Complementary therapy in nursing practice: policy development in Australia. The Australian Journal of Holistic Nursing,3:1:4-11.

Mollart, L. 2003. Single-blind trial addressing the differential effects of two reflexology techniques versus rest, on ankle and foot oedema in late pregnancy. Complementary Therapies in Nursing and Midwifery, 9:203-8.

Oleson, T. and Focco, W. 1993. Randomized controlled study of premenstrual symptoms treated with ear, hand and foot reflexology. Obstetrics and Gynaecology 82:6:906-11.

Reynolds, D. 2003. Severe gestational edema. Journal of Midwifery Women's Health. 48:2:146-8.

Stephenson, N., Weinrich, S., and Tavakoli, A. 2000. The effects of foot reflexology on anxiety and pain in patient with breast and lung cancer. Oncology Nursing Forum, Jan; 27; 1; 67-72.

Stephenson, N., Dalton, J., and Carlson, J. 2003. The effect of foot reflexology on pain in patients with metastatic cancer. Applied Nursing Research. Nov; 16:4:284-6.

Tiran, D. 1996. The use of complementary therapies in midwifery practice: a focus on reflexology. Complementary Therapies in Nursing and Midwifery. 2:32-7.

Tiran, D. and Chummun, H. 2005. The physiological basis of reflexology and its use as a potential diagnostic tool. Complementary Therapies in Clinical Practice, 11:1:58-64.

Young, G. and Jewell, D. 1997. Interventions for varicosities and leg oedema in pregnancy (Cochrane Review). In: The Cochrane Library, Issue 2, 1999. Oxford: Update Software.

Wright, S., Courtney, U., Donnelly, C., Kenny, T. and Lavin, C. 2002. Client's perceptions of the benefits of reflexology on their quality of life. Complementary Therapies in Nursing and Midwifery, 8:69-76.

❖ ❖ ❖