Complementary and alternative medicine use in pregnancies complicated by diabetes

Elizabeth Stenhouse, Ann Millward, Philippa Wheeler, Janet Richardson

Article points

1. Use of CAMs in the Western world has grown at a phenomenal rate, especially for diabetes management.
2. The combined high incidence of CAM use in pregnancy and in diabetes may lead to increased use of CAMs by women whose pregnancies are complicated by diabetes.
3. The results of an audit investigating the use of CAMs are presented and discussed.

Key words

- Pregnancy
- Complementary therapies
- Alternative medicine

Elizabeth Stenhouse is a Senior Lecturer, Philippa Wheeler is a PhD student and Janet Richardson is a Professor in Nursing and Health Studies. All are based at the University of Plymouth. Ann Millward is a Clinical Senior Lecturer and Consultant in Diabetes & Endocrinology at Peninsula College of Medicine and Dentistry.

The use of complementary and alternative medicine (CAM) in the Western world has grown at a phenomenal rate over the last decade, especially for the management of chronic diseases such as diabetes. It has been suggested that up to 3.6 million North Americans use CAMs for the management and treatment of diabetes despite the limited evidence of its effectiveness (Dham et al, 2006). Women are frequent users of CAMs for female-specific health conditions, in particular during pregnancy. This article will present results from an audit investigating CAM use in pregnant women with type 1 or 2, or gestational diabetes.

Data from recent national surveys in the US demonstrated that there has been a dramatic increase in the overall use of CAMs in adults with diabetes (Bell et al, 2006; Garrow and Egede, 2006). This is supported by an examination of the current evidence base of a number of complementary therapies used for the management and treatment of diabetes showing that CAMs have an impact on diabetes by affecting glycaemic control, usually by lowering blood glucose levels (Stenhouse et al, submitted; Pilkington et al, 2007). Furthermore, analysis of the US national survey data by Garrow and Egede (2006) indicated that females with chronic conditions, such as diabetes, plus another chronic condition have a high incidence of CAM use to manage their conditions. This high CAM use by women is supported by the work of MacLennan et al (2002), Adams et al (2003) and Smith et al (2006) who propose that in the general population, women are more likely than men to use CAMs, possible since CAM use is common for female-specific conditions.

CAM and pregnancy

It has been reported that CAM use among women during pregnancy is increasing: acupuncture, acupressure and ginger for pregnancy-induced nausea and vomiting are popular (Knight et al, 2001). Acupuncture and moxibustion are treatments for converting a breech-presenting fetus to cephalic (Budd, 2000; Coyle et al, 2005; see *Appendix* for some useful definitions) and raspberry leaf tea is used to induce labour (Simpson et al, 2001). It is well documented that midwives are enthusiastic in recommending CAM use in pregnancy with some midwives undertaking specialist CAM training in order to integrate therapies into their practice (Budd, 1992; Tiran, 2004).

CAM in pregnancies complicated by diabetes

Pre-existing type 1 and 2, and gestational diabetes are collectively the most common medical conditions affecting pregnancy. The prevalence is estimated at 1 in 250 pregnancies. In England and Wales, approximately 600 000 women give birth each year, with 2–5 % of pregnancies involving women with diabetes. Of these cases, 25 % involve pre-existing type 1 diabetes, 10 % pre-existing type 2 diabetes and the remaining 65 % gestational diabetes (NICE, 2007). The combined high incidence of CAM use in pregnancy and in diabetes may lead to increased use of CAMs by women whose pregnancies are complicated by diabetes. However, there are limited data exploring the use of CAMs in this particular group. Therefore, we undertook an audit to establish the use of CAMs in women attending the combined diabetic antenatal clinic at Derriford hospital within the Plymouth Hospitals NHS Trust.

Aim

The aims of the audit were to:

- ascertain CAM use by women whose pregnancies are complicated by diabetes
- identify the types of CAMs used
- ascertain who recommends the use of CAM therapy in pregnancy
- assess the average monthly expenditure on CAM therapies
- assess satisfaction with the therapy measured by how helpful women found the therapy.

Methods

Data were collected using a previously validated questionnaire developed by Wheeler and Hyland (2007, in press). This consisted of a list of 60 CAMs (*Table 1*), of which 50 were derived from a comprehensive sourcebook on CAMs (Ernst, 2001) and a further 10 from Professors Janet Richardson and Edzard Ernst, Philippa Wheeler plus expert opinions from others. These 10 CAMs included: African herbal medicine; Ayurverdic herbal medicine; Chinese herbal medicine; allergy treatment; cupping acupressure; kinesiology; manual lymphatic drainage; prayer; shamanism (drumming or dream therapy); and soul therapy (re-birthing). There was a free text box to record any CAM not listed.

The questionnaire

The questionnaire consisted of a front sheet with:

- an explanation of the purpose of the audit
- how to complete the questionnaire
- a 4-point Likert scale to measure satisfaction with the CAM.

The CAM therapies were listed in alphabetical order. The instructions gave direction on recording information if one or multiple therapies were used. For example; if only Bach flower remedy was used, the participant was requested to only select one therapy: flower essence. However, if traditional massage with lymphatic drainage is given, they were asked to select both therapies. The participants were asked to record if they used CAMs before and during pregnancy, and to rate how helpful they felt the CAM had been. A 4-point Likert scale was developed with 0–3 indicating 'don't know if CAM was helpful through to 'CAM was very helpful'. Further information was gathered on who advised the use of the specific CAMs and the average monthly

	Have you used or been treated with BEFORE pregnancy	Have you used or been treated with DURING pregnancy	Have you been recommended by a Midwife or DSN?	Have you treated yourself or chosen this yourself?	Overall how helpful was it? 0 = Don't know 1 = None 2 = A little 3 = Very
Acupressure, cupping etc.					
Acupuncture					
African herbal medicine					
Alexander technique					
Allergy treatment					
Anthroposphical medicine					
Aromatherapy					
Art therapy					
Autogenic training					
Autologous blood therapy					
Ayurvedic herbal medicine					
Biofeedback					
Bowen technique					

Figure 1. An example page of the questionnaire.

Table 1. List of CAMs included in questionnaire.

Acupressure, cupping etc.
Acupuncture
African herbal medicine
Alexander technique
Allergy treatment
Anthroposphical medicine
Aromatherapy
Art therapy
Autogenic training
Autologous blood therapy
Ayurvedic herbal medicine
Biofeedback
Bowen technique
Chelation therapy
Chinese herbal medicine
Chiropractic
Colon therapies
Colour therapy
Cranio–sacral therapy
Crystal therapy, crystal healing
Dance therapy
Enzyme therapy
Feldenkrais method
Flotation therapy
Flower essences of any kind (e.g., Bach)
Healing (e.g., spiritual healing, touch therapy/laying of hands)
Hellerwork, structural integration
Herbal remedies (except Chinese, Ayurvedic or African)
Homeopathy
Hypnotherapy
Imagery, guided or visualisation
Kinesiology
Magnetic field therapy
Manual lymphatic drainage
Massage
Meditation, any type
Music therapy
Naturopathy
Neurolinguistic programming
Osteopathy
Oxygen therapy
Ozone therapy
Polarity therapy
Prayer
Qi gong/chi kung
Reflexology
Reiki
Relaxation therapy
Rolfing, structural integration
Shamanism, drumming or dream therapy
Shiatsu
Soul therapy, rebirthing
Tai Chi
Tragerwork
Water injection
Yoga
Vitamin supplements (e.g., multivitamin, vitamin C), mineral supplements (e.g., multimineral, calcium)
Plant or animal supplements (e.g., glucosamine, propolis, fish or flax oils)
Probiotics (e.g., yakult, bifidabacteria)
Any other type of therapy or supplement not listed

expenditure.

An example of a page of the questionnaire is shown in *Figure 1*.

Setting and sample

Over a 6-week period, a convenience sample of 16 women with diabetes were recruited from the combined diabetic antenatal clinic of a large district general hospital. No women refused to participate.

Data collection procedures and analysis

On arrival at the antenatal clinic, women were approached by the researcher, a qualified midwife with diabetes experience, and informed of the audit. They were asked to complete the questionnaire with anonymity assured. Agreement to partake was taken as consent. The questionnaire was completed by the women in the waiting room prior to their appointment. Any queries during the process were answered by the researcher. Following completion, any questions related to the use of CAMs in pregnancy were addressed by the research midwife and diabetologist.

Table 2. Diabetes and gestation at questionnaire completion.

Type of diabetes	Number	Mean gestation (weeks)	Range (weeks)
Type 1	5	25	20–32
Type 2	4	21	15–32
Gestational	7	22	29–34

Table 3. Number of CAMs used before and during pregnancy by type of diabetes.

Type of diabetes	Number	Before pregnancy	During pregnancy
Type 1	5	10	5
Type 2	4	12	8
Gestational	6	19	16
Total	15	43	29

Table 4. CAM used before and during pregnancy.

CAM	Before pregnancy	During pregnancy
Acupuncture	1	2
Aromatherapy	4	1
Art therapy	1	1
Bowen technique	1	2
Chiropratic	2	1
Healing (e.g., spiritual healing, touch therapy/laying of hands)	1	1
Massage	8	4
Meditation, any type	1	2
Music therapy		1
Osteopathy	1	1
Prayer	2	2
Reflexology	2	1
Yoga	3	1
Vitamin supplements (e.g., multivitamin, vitamin C)	2	1
Mineral supplements (e.g., multimineral, calcium)	5	1
Plant or animal supplements (e.g., glucosamine, propolis, fish or flax oils)	2	1
Probiotics (e.g., yakult, bifidobacteria)	7	6
Total	43	29

Results

The type of diabetes and gestation of pregnancy on completion of the questionnaire are documented in *Table 2*.

Only one participant diagnosed with gestational diabetes had not used CAMs before or during pregnancy and was therefore excluded from analysis; one participant commenced a therapy during pregnancy.

Of all the participants, the maximum number of CAMs used by an individual was eight, which included aromatherapy, massage, meditation, prayer, yoga and a variety of minerals and multivitamin supplements. During pregnancy, this participant reduced her therapies to prayer and introduced the Bowen technique.

The number of CAMs used before and during pregnancy by type of diabetes is shown in *Table 3*.

Before pregnancy, the most frequently used therapies were massage, mineral supplements, probiotics (for example, yakult or bifidobacteria), aromatherapy and yoga. During pregnancy, CAM usage decreased; however, probiotics and massage remained the most frequently used therapy with a slight increase in acupuncture and the Bowen technique (*Table 4*).

Women reported being most satisfied with massage and least satisfied with vitamin supplements and probiotics before pregnancy. These results are reflected in the satisfaction of CAMs during pregnancy. Prior to pregnancy, all women reported that they self-referred or were recommended the CAM by a friend. One participant was recommended the Bowen technique during pregnancy by a friend and she found it very helpful with a high level of satisfaction. None of the participants reported a midwife, DSN or other healthcare professional recommending a CAM or referring them to a therapist either before or during pregnancy.

The average monthly expenditure on CAMs was £18.31, ranging from £5 to £90.

Discussion

This small audit was undertaken to explore the use of CAMs in women whose pregnancies were complicated by diabetes. It was found that women with diabetes used CAMs before and during pregnancy, with a reduction of CAM use during pregnancy. Massage was the CAM women were most satisfied with and probiotics least. This may reflect the tactile nature of massage that may give a feeling of wellbeing as seen in a study of children with type 1 diabetes receiving massage who not only reported a reduction in HbA_{1c} but also a reduction in levels of anxiety and increased feelings of wellbeing (Field et al, 1997). The dissatisfaction with probiotics may be due the women experiencing no obvious effect from this CAM. However, emerging research assessing the efficacy of probiotics in the treatment of people with renal vancomycin-resistant enterocci (VRE) showed probiotic therapy to be successful. Nevertheless, the patients were unaware they had been cleared of this infection (Manley et al, 2007). The wide range in cost of CAM per month was ascribed to the cost of gym membership of £90 per month by one woman with type 1 diabetes who attended yoga and to £5 spent on probiotics by another.

None of the women in this audit had informed the midwife, DSN or any healthcare professional they were using a CAM, highlighting that women do not see these therapies as affecting the treatment and management of their diabetes.

There were limitations to this audit. The number of participants in the audit was small and it was conducted over a relatively short period of time. The questionnaire had been designed for use among young healthy adults and adaptations were required for this specific group. The number of CAMs cited (60) was comprehensive and extensive with some women commenting on the length and the time it took to complete. It may have been beneficial to reduce the number of CAMs by grouping several CAMs into single categories; however, information may have been lost in the process.

Conclusions and recommendations

Women with pregnancies complicated by diabetes are not routinely asked if they have used or are using a CAM before or during pregnancy. The evidence and the results of this small audit have indicated that healthcare professionals should inquire if CAMs are being, or have been, used and explain the effect they may have on glycaemic control.

Healthcare professionals should also be aware that CAM use is high among women and people with diabetes; therefore, as part of routine diabetes care, information on CAM use should be ascertained. CAMs may be an additional treatment for women whose pregnancy is complicated by diabetes as it may help with relaxation and a general feeling of wellbeing. Better education should be made available to people with diabetes and to the general population about the potential benefits of CAM use during pregnancy. The recognised limitations of this audit have been addressed and informed the development of a more appropriate questionnaire to be used in a larger study investigating the use of CAM in pregnancies complicated by diabetes. ■

Adams J, Sibbritt DW, Easthope G, Young AF (2003) The profile of women who consult alternative health practitioners in Australia. *Medical Journal of Australia* **179**: 297–300

Bell RA, Suerken CK, Grzywacz JG et al (2006) Complementary and alternative medicine use among adults with diabetes in the United States. *Alternative Therapies in Health and Medicine* **12**: 16–22

Budd S (1992) Traditional Chinese medicine in obstetrics. *Midwives Chronicle* **105**: 140–3

Budd S (2000) Moxibustion for breech presentation. *Complementary Therapies in Nursing and Midwifery* **6**: 176–9

Coyle ME, Smith CA, Peat B (2005) Cephalic version by moxibustion for breech presentation. *Cochrane Database of Systematic Reviews* **2** CD003928

Dham S, Shah V, Hirsch S, Banerji MA (2006) The role of complementary and alternative medicine in diabetes. *Current Diabetes Reports* **6**: 251–8

Ernst E (2001) *The desktop guide to complementary and alternative medicine: an evidence-based approach*. Mosby, Edinburgh, UK

Field T, Hernandez-Reif M, LaGreca A et al (1997) Massage therapy lowers blood glucose levels in children with diabetes. *Diabetes Spectrum* **10**: 237–9

Garrow D, Egede LE (2006) National patterns and correlates of complementary and alternative medicine use in adults with diabetes. *Journal of Alternative and Complementary Medicine* **12**: 895–902

Knight B, Mudge C, Openshaw S et al (2001) Effect of acupuncture on nausea of pregnancy: a randomized, controlled trial. *Obstetrics and Gynecology* **97**: 184–8

MacLennan AH, Wilson DH, Taylor AW (2002) The escalating cost and prevalence of alternative medicine.*Preventive Medicine* **35**: 166–73

Manley KJ, Fraenkel MB, Mayall BC, Power DA (2007) Probiotic treatment of vancomycin-resistant enterococci: a randomised controlled trial. *Medical Journal of Australia* **186**: 454–7

NICE (2007) *Diabetes in pregnancy: management of diabetes and its complications from pre-conception to the postnatal period*. Available at: www.bwhct.nhs.uk/diabetes_and_pregnancy_2007.doc (accessed 20.12.2007)

Pilkington K, Stenhouse E, Kirkwood G, Richardson J (2007) Diabetes and complementary therapies: mapping the evidence. *Practical Diabetes International* **24**: 371–6

Simpson M, Parsons M, Greenwood J, Wade K (2001) Raspberry leaf in pregnancy: its safety and efficacy in labor. *Journal of Midwifery and Womens Health* **46**: 51–9

Smith CA, Collins CT, Cyna AM, Crowther CA (2006) Complementary and alternative therapies for pain management in labour. *Cochrane Database of Systematic Reviews* **4** CD003521

Stenhouse E, Kirkwood G, Pilkington K, Richardson J (2008) The use of acupuncture in the management of diabetes mellitus – a systematic review of randomised controlled trials. *The Journal of Alternative and Complementary Medicine* (Submitted)

Tiran D (2004) Viewpoint – midwives' enthusiasm for complementary therapies: a cause for concern? *Complement Therapy and Nursing Midwifery* **10**: 77–9

Wheeler P, Hyland M (2007) Dispositional predictors of complementary medicine and vitamin use in students. *Journal of Health Psychology* (In Press)

Page points

1. It was found that women with diabetes used CAMs before and during pregnancy, with a reduction of CAM use during pregnancy.
2. Women with pregnancies complicates by diabetes are not routinely asked if they have used or are using a CAM before or during pregnancy.
3. Healthcare professionals should also be aware that CAM use is high among women and people with diabetes; therefore, as part of routine diabetes care, information on CAM use should be ascertained.

Acknowledgements

The authors wish to acknowledge Professor Michael Hyland for support with the questionnaire construction.

Appendix

Acupressure: The application of manual pressure to stimulate specific points on the body along what are considered to be lines of energy.

Moxibustion: In Eastern medicine, the burning of moxa on or near a person's skin, or acupuncture needle, as a counterirritant.

Bowen technique: Gentle movements over muscles and soft tissue can stimulate the release of tension and stress empowering the body's own resources to naturally reset and heal itself.

Definitions taken from: OED, Second edition, (2006) *Oxford dictionary of English*, Oxford University Press, Oxford.