

A Review of the Current Status of Mind Body Medicine in Obstetric and Gynecology Practice

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ABSTRACT

Purpose: Mind body therapies (MBTs) are gaining popularity. Clinicians need to be aware of the current evidence-base supporting or refuting their applicability in obstetric and gynecology practice.

Methods: An electronic search of Medline was carried out for review articles, meta-analysis and randomized control trials (RCTs) for use of MBTs in obstetrics and gynecology from the year 2000.

Results: Yoga, acupuncture, behavioral therapies and hypnotherapy are widely used. Yoga has applications in dysmenorrhea, polycystic ovarian syndrome (PCOS), pregnancy and menopausal symptoms. Acupuncture has applications in functional hypothalamic amenorrhea (FHA), *in-vitro* fertilization (IVF), dysmenorrhea and has been used for menopausal symptoms, endometriosis and lactation. Behavioral therapy has applications in menopausal symptoms and FHA. Hypnotherapy has been used in FHA and pregnancy.

Discussion: Numerous trials and reviews have been carried out for the applications of MBTs in obstetrics and gynecology. However, these are heterogenous, have small sample size, methodological flaws and only provide short-term results. While we await large scale, well-designed RCTs, current evidence does not permit the use of MBTs as primary therapies. They can be used as adjuncts, but with caution as side effects though claimed to be negligible, have been largely under-reported in trials.

Keywords: Mind body medicine, Mind body therapy, Mind body therapy for hot flashes, Yoga in gynecology, acupuncture in menopause, Acupuncture in IVF, Behavioral therapy in menopause, Behavioral therapy in functional hypothalamic amenorrhea, Yoga in pregnancy, Hypnosis in pregnancy.

Abbreviations: APGAR: Appearance pulse grimace activity respiration; CBT: Cognitive behavioral therapy; FHA: Functional hypothalamic amenorrhea; GnRH: Gonadotropin releasing hormone; HPA: Hypothalamic-pituitary axis; HPG: Hypothalamic-pituitary gonadal axis; HRT: Hormone replacement therapy; IVF: *In vitro* fertilization; LH: Luteinizing hormone; MBSR: Mindful-based stress reduction; MBT: Mind-body therapy; PCOS: Polycystic ovarian syndrome; RCT: Randomized control trial; TSH: Thyroid stimulating hormone.

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INTRODUCTION

Mind-body medicine interventions are readily accessible in our society today. There is a plethora of literature on the Internet regarding its uses in various medical conditions. Yoga, acupuncture, hypnotherapy, behavioral therapy are gaining popularity. However, when in our day to day practice, a patient asks us whether he or she can use a particular mind-body therapy, as we do not have a clear answer.

Many patients use such therapies alongside without the knowledge of the treating physicians. Harrigan et al (2011) demonstrated that 35.8% patients seeing an obstetrician/gynecologist used some form of complementary and alternative medicine and only half disclosed this to their doctor.¹ The pervasive nature of these therapies makes it imperative that we understand their current applicability in clinical practice.

Medicine is not enough as it fails to move beyond the biomedical model. There may be several reasons for it (e.g. overloaded curriculum, lack of economic incentives) but a dearth of evidence base supporting the biopsychosocial model is an important factor.²

This article reviews the efficacy of mind-body therapies (MBTs) in the treatment of common conditions in obstetrics and gynecology practice.

METHODS

An electronic search of the MEDLINE (PubMed) and a manual search of the reference sections of relevant articles were conducted. Search terms included specific MBTs (e.g. yoga, behavioral therapy, hypnosis, acupuncture) and mind-body therapies in specific gynecological conditions (e.g. yoga in menopause, mind-body therapies in menopause, acupuncture in yoga, dysmenorrhea, functional hypothalamic amenorrhea, *in vitro* fertilization, etc.). Common conditions seen in an obstetrician and gynecologist's clinic in which use of mind-body interventions have been extensively reported were included.

We selected recent randomized trials pertaining to these conditions and systematic reviews and meta-analysis on MBTs. When these reviews did not exist, we examined the available literature, focusing on randomized trials.

RESULTS

Menopause

Menopause is associated with a sharp decline estrogens leading to insulin resistance syndrome which predisposes to cardiovascular diseases and hypertension.³

Menopause is associated with depressive symptoms, hot flashes, tension, anger, anxiety, irritability. Such negative affective states are strongly associated with insulin resistance syndrome in a bidirectional manner.⁴

Maintaining waist circumference and minimizing weight gain in middle age women is protective against hot flashes but the exact association has not been elucidated.⁴

Albertazzi (2007) found that exercising women had better mood profiles, lower somatic symptoms and difficulties in memory concentration compared with sedentary women.⁴ In 2011, a Cochrane review concluded that there is not enough evidence to support the theory that hot flashes are reduced by exercise, citing a lack of good quality studies. However, there is a weak trend to support a preference for exercise over no treatment at all.⁵

Yoga has been shown to improve glucose tolerance and lipid profiles and reduces body weight, blood pressure, sympathetic activity and oxidative stress. It improves sleep, enhances stress related coping, reduces depression, anger, anxiety and fatigue.

Carson et al (2009), in a randomized control trial (RCT), found that yoga significantly reduced hot-flash frequency and severity in survivors of early breast cancer ($p < 0.001$). There was decreased sleep disturbance, joint pain, fatigue. Benefits persisted at 3-month follow-up.⁶

Innes et al (2010) in a systematic review concluded that there was moderate benefit of yoga for both physiological and psychological symptoms.⁷ However, another review and meta-analysis by Carmer et al (2012) of RCTs for yoga in menopause did not have the same conclusion. They recommended it as an adjunct to therapy in women who had psychological symptoms associated with menopause.⁸ However, no study has evaluated long-term outcomes and whether the benefit gained persists beyond 3 months. Different studies have used different styles of yoga (e.g. Iyengar yoga, traditional Indian yoga, Tibetan yoga). Not only there has to be a homogeneity among studies with regard to the style of yoga used but its different components (asanas, meditation and breathing techniques) evaluated for efficacy.⁸

Acupuncture has been found to reduce the frequency and severity of hot-flashes in two recent, large studies by Borud et al (2009; ACUFLASH study) and Kim et al (2010). In the ACUFLASH study, there was significant improvement in quality of life as measured by the Women's Health Questionnaire.^{9,10}

A recent review of all reported RCTs on acupuncture for hot flashes carried out by Wang and Cho (2009) reported insufficient evidence for acupuncture to recommend it as standard treatment for this condition at present.¹¹

The number of RCTs compared with a non-penetrating placebo needle control or HRT is too small, and some studies had flawed methodology, making it difficult to generate reliable conclusions.¹¹

Cognitive behavioral therapy (CBT) and relaxation training consist of group sessions in which information and advice about distressing symptoms and their precipitants are given. Relaxation and stress reduction techniques are taught with cognitive restructuring of unhelpful thoughts through group discussion.¹²

Mindfulness-based stress reduction (MBSR) involves patients learning to recognise and discriminate more accurately between the components of experience, such as thoughts, feelings, sensations and developing a nonreactive awareness of these.

Carmody et al (2011) found MBSR helpful in coping with hot flashes, reduction of bother, reduced stress perception, improved sleep and quality of life.¹³

In a systematic Cochrane review (2009) of quality, double-blind RCTs stated that the placebo effect on the frequency of hot flushes and night sweats was 58% compared with the 90% of combined HRT. This degree of placebo effect should be the yard stick of assessing the putative effect of other therapies for vasomotor symptoms. With most reported trials on mind-body therapies being unregulated, it is difficult to draw conclusions and rule out placebo effect.¹⁴

Functional Hypothalamic Amenorrhea

There is synergism between metabolic and psychogenic stressors in the perpetuation of functional hypothalamic amenorrhea (FHA) with reduction in GnRH/LH and rise in cortisol levels.

Fertility can be restored with exogenous administration of gonadotropins or pulsatile GnRH but fertility management alone will not permit recovery of the adrenal and thyroidal axes.

Initiating pregnancy with exogenous means without reversing the hormonal milieu induced by chronic stress may increase the likelihood of poor obstetrical, fetal or neonatal outcomes.

Tschugguel et al (2003) found hypnotherapy efficacious in resumption of menstruation in patients with FHA without the pitfalls of pharmacological modalities.¹⁵

Women with FHA display subclinical hypercortisolism and it is hypothesized that the cortisol lowering effect of hypnosis might account for its beneficial effect.^{16,17}

Berga et al (2006) found CBT to be helpful in patients with FHA with resumption of ovulation in 88% patients as opposed to 25% controls.¹⁸

Recently, Michopoulos et al (2013) have reported that CBT decreased serum cortisol and increased TSH and leptin levels without concomitant weight gain. The increase in TSH levels after CBT treatment indicates that CBT alters metabolism. Glucocorticoids blunt the TSH response to thyroid-releasing hormone (TRH) and alter the thyroidal axis feedback set point.¹⁹

They concluded that the ability of CBT is a potent tool for treating FHA as it addresses the full constellation of neuroendocrine concomitants of FHA.¹⁹

Endometriosis

Meissner et al (2010) found that traditional Chinese medicine and hypnotherapy decreased pain and increased birth rates in patients with therapy-refractory endometriosis.²⁰

Wayne et al (2008) evaluated Japanese-Style acupuncture (thinner needles, less penetration less manipulation) for endometriosis-related pelvic pain in adolescents and young women. Controls had sham treatments that employed a validated sham acupuncture device that does not penetrate the skin. They

concluded that this technique was an effective, safe and well-tolerated adjunct therapy for endometriosis-related pelvic pain in adolescents.²¹

There are very few trials evaluating acupuncture in pain due to endometriosis. Zhu et al (2011 Cochrane database) in their review found only one trial that matched their selection criteria.²²

In-vitro Fertilization

More than 40 clinical trials investigating the impact of acupuncture on IVF outcomes have been undertaken since 1999, and nine systematic reviews have been published, but the evidence is still unclear about whether a woman should have acupuncture as an adjunctive therapy for IVF.²³

Magarelli et al (2009) observed increased pregnancy rates in acupuncture treated IVF patients and hypothesized that the increase in pregnancies is the result of the impact of acupuncture on prolactin and cortisol levels during the gonadotropins stimulation in the IVF treatment cycle.²⁴

In a recent paper, Kang et al (2011) analyzed data from six systematic (including five meta-analyses) and concluded that acupuncture on the day of embryo transfer improved pregnancy rates in IVF.²⁵

Anderson et al (2013) have stated that the methodology used in the clinical trials does not closely resemble the use of acupuncture in real world acupuncture clinics, limiting the applicability of this research. The studies are heterogeneous with regard to hypotheses, subject population, study protocols, acupuncture interventions, controls and outcome measures.

Since many women undergoing IVF are currently using acupuncture, there is a pressing need for a broader understanding of the use of acupuncture for female infertility.²³

Domar et al (2011) found that a stress reduction CBT was helpful in patients undergoing IVF with increased pregnancy rates for the 2nd cycle ($p < 0.05$)²⁶

Polycystic Ovarian Syndrome

The acupuncture effect on female sex hormones through actions on HPA axis and HPG axis (by beta endorphins) is postulated as its mechanism leading to benefit in polycystic ovarian syndrome (PCOS).

Lim and Wong (2010) have reported four studies evaluating the effect of electroacupuncture on girls with PCOS with a positive outcome. However, these studies were small with only two being RCTs. At best, acupuncture in this population can be regarded as investigational.²⁷

Nidhi et al (2012) found yoga to be more effective than conventional physical exercises in improving glucose, lipid, and insulin values, including insulin resistance values, independent of anthropometric changes in young women with PCOS.²⁸ The lack of weight loss after a 12-week yoga program successful in reducing fasting blood sugar and insulin and lipid levels may indicate that the hypothalamic-pituitary-adrenal axis and sympathoadrenal pathways, rather than the exercises the program entailed, may be responsible for these reductions.²⁸

Dysmenorrhea

Yoga had been increasingly recommended for dysmenorrhea, premenstrual syndrome and other disorders in premenopausal women in the west.²⁹

Rakhshae (2011) found that yoga (Cobra, Cat and Fish Poses) resulted in significant decrease in pain intensity and duration in young girls with dysmenorrhea ($p < 0.05$).³⁰

Acupuncture stimulates the production of endorphins, serotonin and acetylcholine within the central nervous system, thus enhancing analgesia. The National Institutes of Health has recently recommended acupuncture as an effective tool for menstrual pain. Cho et al (2010) carried out a systematic review of 27 RCTs evaluating the efficacy of acupuncture in primary dysmenorrhea. Classical acupuncture, auricular acupressure, warm acupuncture, acupoint injection, auricular acupuncture plus auricular acupressure or electroacupuncture have been used. Most studies found a reduction in pain compared to pharmacological interventions but with methodological flaws. They also have stated the evidence of the efficacy of acupuncture in study subjects compared to sham acupuncture in controls was not convincing.³¹

Taylor et al (2002) demonstrated the safety and effectiveness of an acupressure garment (the relief brief) in decreasing the pain and symptom distress associated with dysmenorrhea.³²

Chung et al (2012) in their systematic review and meta-analysis of 25 RCTs have concluded that acupoint stimulation when compared with nonacupoint-related stimulation or medication had significant effects. They have also stated that invasive and noninvasive acupoint stimulation were effective separately, with the latter being more effective in primary dysmenorrhea. The most common adverse events were hemorrhage and hematoma.³³

Ming-Chiu Ou et al (2012) have demonstrated the effectiveness of aromatic oil massage in patients with primary dysmenorrhea.³⁴

Pregnancy, Childbirth and Lactation

Field et al (2011) found that 12 weeks of twice weekly yoga or massage therapy sessions (20 mins each) in prenatally depressed women, decreased depression, anxiety, anger, back pain and leg pain ($p < 0.001$). Greater gestational age and birth weight were also noted in the experimental groups versus control ($p < 0.005$).³⁵ Yoga decreases depression and serum cortisol which in turn decreases intrauterine artery resistance leading to increased gestational age.^{35,36}

Rakhshani et al (2012) demonstrated that yoga decreased complications in high-risk pregnancies. There were fewer cases of pregnancy-induced hypertension, preeclampsia, gestational diabetes and intrauterine growth restriction in the yoga group ($p < 0.05$). There were significantly fewer small for gestational age babies and newborns with low APGAR scores born in the yoga group ($p = 0.033$).³⁷

Babbar et al (2011) in their review studied five prospective observational studies and three randomized clinical trials addressing yoga and pregnancy. The RCTs indicated that doing yoga during pregnancy can significantly lower pain and

discomfort ($p < 0.05$) and perceived stress ($p < 0.001$) and improve quality of life ($p < 0.001$). All three RCTs were poorly compliant with the consolidated standard of reporting trials statement. They concluded that, while awaiting an appropriately designed RCT to determine the benefits of yoga during pregnancy, it remains a viable exercise option.³⁸

In a similar systematic review, Curtis et al (2012) have stated that a prenatal yoga program can decrease psychological stress, pain during labor and result in more favorable perinatal outcomes in terms of birth weight and preterm labor. The side effects reported are minimal. However, the number of RCTs conducted are few and most are flawed. A definite conclusion cannot be made.³⁹

Landolt and Milling (2011) conducted a comprehensive methodological review of research on the efficacy of hypnosis for reducing labor and delivery pain and reported 13 studies satisfying these criteria. Heterohypnosis and self-hypnosis were consistently shown to be more effective than standard medical care, supportive counseling and childbirth education classes in reducing pain. Other benefits included better infant APGAR scores and shorter stage 1 labor. However, of the 13 studies reviewed herein, only three assessed hypnotic suggestibility with a standardized scale. Of these three studies, only one examined the statistical association between suggestibility and treatment condition.⁴⁰

Khianman et al (Cochrane review) analyzed 11 RCTs and stated that there is some evidence that relaxation during pregnancy reduces stress and anxiety. However, there was no effect on preterm labor or preterm birth. These results should be interpreted with caution as they were drawn from included studies with limited quality.⁴¹

Acupuncture in pregnant women should be undertaken with care. Needling at some points (namely, on the abdomen and lumbosacral region) as well as strong stimulation of certain distant points may cause miscarriage.

In early pregnancy, acupuncture at the upper limb points can be used for the prevention and treatment of morning sickness. In order to prevent miscarriage induced by needling, acupressure is recommended for the treatment of morning sickness.⁴²

Acupuncture stimulates milk secretion after childbirth and can be used to treat deficient lactation due to mental lability or depression. It has been observed that acupuncture elevates the blood prolactin level in women with deficient milk secretion after childbirth.⁴²

Neri et al (2011) have demonstrated the usefulness of acupuncture in maintaining lactation.⁴³

DISCUSSION

Mind-baby therapies have applications in obstetrics and gynecology practice. Yoga has application in dysmenorrhea, PCOS, pregnancy and menopausal symptoms. Acupuncture has applications in functional hypothalamic amenorrhea FHA, IVF, dysmenorrhea and has been used for menopausal symptoms, endometriosis and lactation. Behavioral therapy has applications in menopausal symptoms and FHA. Hypnotherapy has been used in FHA and pregnancy.

These therapies are postulated to work by neuroendocrine modulation though the exact mechanisms have not been elucidated. Though there is proof of its effect, definite scientific evidence in the form of double blind large scale standardized randomized control trials are lacking. Review articles on the subject have found that the methodology in most existing trials were flawed making it difficult to state conclusions.

It scientifically and medically unsound ethically wrong to advocate and purvey therapies that at best only have a placebo effect. Thus, we need to interpret the existing evidence with caution. Therapies, like acupuncture and yoga, are whole systems of medicine. Treatment in these dedicated clinics are individualized to the patient depending upon their concomitant problems.²³ However, in trials conducted, they are usually protocol based and have been different in different trials.

It is comforting that most trials pertaining to the use of MBTs report few side effects. However, most trials do not mention side effects and dropout rates. Also, none of the existing trials report long-term outcomes.

The evidence is not sufficient to use them as first line or the only treatment, but they can be used as adjuncts to standard treatment. Many patients with or without the knowledge of the physician use these therapies. Thus, there is an urgent need for well designed, large scale randomized trials to provide answers regarding the applicability of MBTs in medicine.

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