

Traditional and complementary medicine applications in preoperative anxiety

 Münire Babayiğit¹,  Mustafa Alparslan Babayiğit²

¹Department of Anesthesiology and Reanimation, Ankara Atatürk Sanatorium Training and Research Hospital, Ankara, Türkiye

²Public Health Specialist, Occupational Physician, Ankara, Türkiye

Received: 10/12/2023

Accepted: 26/12/2023

Published: 12/02/2024

Cite this article: Babayiğit M, Babayiğit MA. Traditional and complementary medicine applications in preoperative anxiety. *Eurasian J Anesthesiol Intens Care*. 2024;1(1):16-19.

Corresponding Author: Münire Babayiğit, mnroksuz@hotmail.com

ABSTRACT

Preoperative anxiety leads to increased sympathetic activity. This is reflected in the clinic as tachycardia, hypertension and arrhythmias mediated by catecholamines. These hemodynamic changes are also seen during laryngoscopy and intubation and can lead to complications. Pharmacologic agents are usually used to treat anxiety. However, adverse effects and drug interactions may be observed. Traditional and complementary medicine practices have been gaining popularity in recent years as safe and effective methods.

Keywords: Anxiety, surgery, acupuncture, reflexology, hypnosis, phytotherapy, music

INTRODUCTION

Traditional and complementary medicine methods (TCM) are used with increasing frequency in the treatment of diseases, health protection and maintenance. In some countries, health administrators are encouraging physicians trained in modern medicine to incorporate TCM practices into their professional practice as a complement to medical practices. Accordingly, more noninvasive, less pharmacologic agents and more economical treatment protocols are being developed.¹⁻³

Anesthesiology and reanimation specialists have the opportunity to use TCM methods in all areas of sedation and anesthesia, intensive care and palliative care units, and pain management. Especially in anesthesia applications, studies on TCM applications in the preoperative process are being carried out.

ACUPUNCTURE

Acupuncture can be used in the treatment of preoperative anxiety. Acupuncture is a treatment that involves applying pressure, needling with steel needles, or applying electric current at certain frequencies to defined points on energy channels in the body. The stimulation of these points regulates the energy flow in the channels and thus the function of the relevant organs. In studies, as a result of stimulation of acupuncture points, functional MRI imaging methods have shown an increase in activity in the relevant points in the brain and the effect of acupuncture has been shown.⁴⁻⁶

Yintang (EX-HN3), DU 20, HT 7, Shenmen points are particularly used for anxiety. A study was conducted on the parents of pediatric patients who will undergo surgery. Parents were divided into 2 groups; Yintang point was applied to one group and sham point (placebo) was applied to the other group. While there was no difference in blood pressure, heart rate, bispectral index (BIS) values between the groups, a significant difference was found between State-Trait Anxiety Inventory (STAI) scores, and it was observed that anxiety scores of the people in the acupuncture group decreased significantly.⁷ Acar et al.⁸ They divided 52 patients scheduled for surgery into 2 groups. They applied acupuncture to the Yintang point to the preoperative acupuncture group and sham acupuncture to the control group. While there was no difference in the control group, it was found that instant anxiety (STAI-S) and BIS values decreased statistically significantly in the study group.

In Wiles et al.⁹ study, a group of brain surgery cases were given acupuncture to the Yintang point while a group was made a control group. While STAI-S6 and APAIS scores decreased in the acupuncture group, no change was observed in the control group. These studies show that Yintang point can be used safely in the treatment of anxiety through scoring systems showing the degree of anxiety. As with the Yintang point, Shenmen, HT7, LU 7 points can be used, and ear or body acupuncture can be performed.¹⁰⁻¹³ Cabrini et al.¹³ evaluated the anxiety and restlessness of patients with the

VAS scale in their study on patients undergoing diagnostic fiberoptic bronchoscopy (FOB). According to the standard protocol, FOB is performed following topical local anesthetic application. Group A was the control group in which the standard protocol was applied, group B received acupuncture to LU 7, PC 6, LI 4, HT 7 (Shen Men), auricular Shen Men points in addition to topical anesthesia, and group C received sham acupuncture with topical anesthesia. In the comparison of anxiety and restlessness with the VAS scale, Group A and C were found to be similar, while in Group B, where acupuncture was applied, it was observed that the patients had less anxiety and felt more comfortable at a statistically significant level. These clinical studies have shown that acupuncture applied with different methods and the use of different points is effective in preventing anxiety.

PHYTOTHERAPY

Phytotherapy, which means treatment with plants, can also be used in the perioperative process. Especially medicinal aromatic herbal oils are used. These oils can be used by inhalation or massage.¹⁴ Rose, lavender, mint, eucalyptus and orange oil are the most commonly used oils in the preoperative period. After inhalation or absorption of these oils through the skin, the central nervous system is stimulated and neurotransmitters such as serotonin and dopamine are released. This in turn regulates anxiety, depression and mood disorders. Lavender oil, which is known to have anxiolytic, analgesic and antispasmodic properties, is most commonly used for anxiety.^{14,15} Experimental studies have shown that lavender essential oil produces relaxation by closing GABA-A and voltage-dependent Ca channels.^{16,17}

Anxiety in children undergoing surgery is significant. There are researches on how anesthesiologists can detect anxiety in this special group and reduce sedative drugs by providing anxiolysis with nonpharmacological tools.¹⁸⁻²⁰ Arslan et al.²¹ investigated the efficacy of lavender aromatherapy in children aged 6-12 years who were scheduled for dental treatment. The 126 children scheduled for dental intervention were divided into two groups as control group and aromatherapy group. While the control group received no additional intervention, the study group inhaled 100% lavender oil for 3 minutes before the dental procedure. Patients were followed up with face image scale (FIS), Face, Legs, Activity, Cry, Consolability (FLACC) and Wong-Baker pain rating scale (WBS) scales throughout the procedure and hemodynamic data were recorded. FIS scale and pain scores were found to be statistically significantly lower in the lavender aromatherapy group compared to the control group.

Dağlı et al.²² investigated the effect of rose oil on preoperative anxiety. The otorhinolaryngology clinic patients were divided into 3 groups as control, sham and aromatherapy group. While distilled water/ethyl alcohol mixture was applied to the sham group, distilled water/ethyl alcohol/rose oil mixture was applied to the study group via diffusor. Anxiety scores were measured and compared with the STAI test in the clinic and before the surgical procedure. While the anxiety scores of the patients in the sham group did not change, preoperative anxiety scores in the control group increased statistically significantly and decreased significantly in the aromatherapy group, and it was reported that aromatherapy application with rose oil decreased the anxiety.

REFLEXOLOGY

Reflexology is done by massaging the reflection points of the body on the soles of the hands and feet with a special technique. It provides well-being by regulating the function of organs. It can be used for many purposes in the perioperative process and can be used in anxiety prophylaxis and treatment.²³⁻²⁶

Patients are generally anxious during cesarean section. However, due to the side effects that may occur in the baby with intrauterine transmission, pregnant patients are avoided to give anxiolytics in the preoperative period. Navaee et al.²⁵ planned a study considering that reflexology may be effective in this special group. Three groups were planned: a control group in which standard care was applied, a massage group in which classical simple foot massage was performed and a foot reflexology group in which foot reflexology was performed with a special technique. Preoperative massages were performed in the interventional groups and preoperative anxiety scores were re-examined in all groups. Baseline and control anxiety scores of the patients were compared. While anxiety scores increased in the control group, it was observed that anxiety scores decreased in the simple massage group and decreased to a greater extent in the reflexology group.²⁶

In patients with cardiovascular disease, anxiety may lead to significant hemodynamic changes and thus complications. It has been reported to be associated with postoperative atrial fibrillation, prolonged hospitalization and increased need for revision surgery.^{27,28} Chandrababu et al.²⁹ in their meta-analysis, they examined the studies on the efficacy of reflexology in cardiovascular interventional procedures. As a result of the evaluation of 10 research articles including a total of 760 patients, it was observed that anxiety scores were statistically significantly lower in patients who underwent reflexology.

MUSIC THERAPY

Music therapy is another TCM method that can be used to reduce stress related to surgery. Its effectiveness is observed more clearly especially in adults and sick individuals. In treatment, music types with anxiolytic and sedative efficacy can be used, as well as music in the style that the individual likes.³⁰ In a study conducted on 100 patients who were planned to undergo laparoscopic hysterectomy, 70 patients were planned as the control group and 30 patients as the music therapy group. While the control group received standard treatment, the music-treatment group was made to listen to music 1 hour before surgery. Anxiety levels of the patients in baseline, preoperative, early postoperative and late preoperative periods were evaluated with STAI-Y form. Anxiety scores in the preoperative, early and late postoperative period were found to be significantly lower in the music therapy group compared to the control group and the anxiolytic effect of music therapy was shown.³¹

HYPNOSIS

Hypnosis is defined as a state of focused attention with increased sensitivity to suggestions. In a hypnosis procedure, the patient is first put into a trance state by induction, and the patient is guided with suggestions during the continuation of the session. Hypnosis can be used to prevent preoperative

anxiety and increases the patient's compliance and comfort.³² There are studies in the literature for this purpose.^{33,34}

Saadat et al.³³ conducted a study to investigate the effect of hypnosis on preoperative anxiety. In this study, 3 groups were planned as control group with standard care, attention control group with listening without hypnotic suggestion and hypnosis group with hypnotic suggestion. Anxiety levels were evaluated with VAS and STAI form before and after the intervention and at the entrance to the operating room. While anxiety levels increased by 47% in the control group, it was found to decrease by 10% in the attention control group and 56% in the hypnosis group. Hypnosis seems to be very effective in preventing preoperative anxiety in this study. Zeng et al.³⁴ conducted a meta-analysis of 6 research articles involving 1242 patients. It was concluded that hypnosis significantly reduced anxiety levels in patients scheduled for minor surgery for breast cancer.

In addition to the physical trauma caused by surgery, psychological effects should also be taken into consideration. Although the frequency of anxiety varies according to the type of surgery, age and gender of the patient, a frequency of up to 97% has been reported.³⁵

CONCLUSION

The anxiety and fears experienced will also affect the recovery and discharge process of the patient. The surgeon and anesthesiologist should determine the patient's anxiety level and plan intervention with the appropriate method. Thus, possible complications can be prevented and patient satisfaction can be increased.

ETHICAL DECLARATIONS

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

- Clarke T, Black LI, Stussman BJ, et al. Trends in the use of complementary health approaches among adults: united States, 2002–2012. *Natl Health Stat Report*. 2015;79:1-16.
- Fischer FH, Lewith G, Witt CM, et al. High prevalence but limited evidence in complementary and alternative medicine: Guidelines for future research. *BMC Complement Altern Med*. 2014;14(1):46.
- Ernst E, White A. The BBC survey of complementary medicine use in the UK. *Complement Ther Med*. 2000;8(1):32-36.
- Huang W, Pach D, Napadow V, et al. Characterizing acupuncture stimuli using brain imaging with fmri - a systematic review and meta-analysis of the literature. *PLoS One*. 2012;7(4):e32960. doi:10.1371/journal.pone.0032960
- Chang CM, Yang CP, Yang CC, Shih PH, Wang SJ. Evidence of potential mechanisms of acupuncture from functional MRI data for migraine prophylaxis. *Curr Pain Headache Rep*. 2021;25(7):49. doi:10.1007/s11916-021-00961-4
- Shen YF, Goddard G. Functional MRI and acupuncture (large intestine 4 acupoint) in patients with myofascial pain of the jaw muscles: a pilot randomized. *Trial Med Acupunct*. 2009;21(4):263-268. doi: 10.1089/acu.2009.0694
- Wang SM, Gaal D, Maranets I, Caldwell-Andrews A, Kain ZN. Acupressure and preoperative parental anxiety: a pilot study. *Anesth Analg*. 2005;101(3):666-669. doi:10.1213/01.ANE.0000175212.17642.45
- Acar HV, Cuvuş O, Ceyhan A, Dikmen B. Acupuncture on Yintang point decreases preoperative anxiety. *J Altern Complem Med*. 2013;19(5):420-424. doi: 10.1089/acm.2012.0494
- Wiles MD, Mamdani J, Pullman M, Andrzejewski JC. A randomised controlled trial examining the effect of acupuncture at the EX-HN3 (Yintang) point on pre-operative anxiety levels in neurosurgical patients. *Anaesthesia*. 2017;72(3):335-342. doi: 10.1111/anae.13785
- Valiee S, Bassampour SS, Nasrabadi AN, Pouresmaeil Z, Mehran A. Effect of acupressure on preoperative anxiety: a clinical trial. *J Perianesthesia Nurs*. 2012;27(4):259-266.
- Paraskeva A, Melemenis A, Petropoulos G, Sifakia I, Fassoulaki A. Needling of the extra 1 point decreases BIS values and preoperative anxiety. *Am J Chinese Med*. 2004;32(5):789-794.
- Gioia L, Cabrini L, Gemma M, et al. Sedative effect of acupuncture during cataract surgery: prospective randomized double-blind study. *J Cataract Refract Surg*. 2006;32(11):1951-1954.
- Cabrini L, Gioia L, Gemma M, et al. Acupuncture for diagnostic fiberoptic bronchoscopy: a prospective, randomized, placebo-controlled study. *Am J Chinese Med*. 2006;34(3):409-415.
- Guo P, Li P, Zhang X, et al. The effectiveness of aromatherapy on preoperative anxiety in adults: a systematic review and meta-analysis of randomized controlled trials. *Int J Nurs Stud*. 2020;111:103747. doi: 10.1016/j.ijnurstu.2020.103747
- Stea S, Beraudi A, De Pasquale D. Essential oils for complementary treatment of surgical patients: state of the art. *Evid Based Complem Alternat Med*. 2014;2014:726341. doi: 10.1155/2014/726341
- Brum LF, Elisabethsky E, Souza D. Effects of linalool on [(3)H]MK801 and [(3)H] muscimol binding in mouse cortical membranes. *Phytother Res*. 2001;15(5):422-425. doi: 10.1002/ptr.973. PMID: 11507735.
- Schuwald AM, Nöldner M, Wilmes T, Klugbauer N, Leuner K, Müller WE. Lavender oil-potent anxiolytic properties via modulating voltage dependent calcium channels. *PLoS One*. 2013;8(4):e59998. doi: 10.1371/journal.pone.0059998
- Kassai B, Rabilloud M, Dantony E, et al. Introduction of a paediatric anaesthesia comic information leaflet reduced preoperative anxiety in children. *Br J Anaesth*. 2016;117(1):95-102. doi: 10.1093/bja/aew154
- Bumin Aydın G, Yüksel S, Ergil J, et al. The effect of play distraction on anxiety before premedication administration: a randomized trial. *J Clin Anesth*. 2017;36:27-31. doi: 10.1016/j.jclinane.2016.04.044
- Liu PP, Sun Y, Wu C, et al. The effectiveness of transport in a toy car for reducing preoperative anxiety in preschool children: a randomised controlled prospective trial. *Br J Anaesth*. 2018;121(2):438-444. doi: 10.1016/j.bja.2018.02.067
- Arslan I, Aydinoglu S, Karan NB. Can lavender oil inhalation help to overcome dental anxiety and pain in children? a randomized clinical trial. *Eur J Pediatr*. 2020;179(6):985-992. doi: 10.1007/s00431-020-03595-7
- Dagli R, Avcu M, Metin M, Kiymaz S, Ciftci H. The effects of aromatherapy using rose oil (rosa damascena mill.) on preoperative anxiety: a prospective randomized clinical trial. *Eur J Integr Med*. 2019;26:37-42.
- Attias S, Sivan K, Avneri O, et al. Analgesic effects of reflexology in patients undergoing surgical procedures: a randomized controlled trial. *J Altern Complem Med*. 2018;24(8):809-815. doi: 10.1089/acm.2017.0167
- M.Abo El-Fadl N. Effects of reflexology on post-operative pain severity after laparoscopic appendectomy for patients at surgical units. *Egyptian J Health Care*. 2021;12(1):587-606. doi: 10.21608/ejhc.2021.143460
- Navaee M, Khayat S, Abed ZG. Effect of pre-cesarean foot reflexology massage on anxiety of primiparous women. *J Complem Integr Med*. 2020;17(3): 20190229. doi: 10.1515/jcim-2019-0229
- Bakhshi M, Ranjbar H, Rostami O, Chamanzari H, Bahrami-Taghanak H. Effect of foot reflexology and gentle stretching exercises on pain intensity in patients after spine surgery: a randomized controlled trial. *Evidence Based Care J*. 2022;12(2):32-40.
- Korkmaz H, Korkmaz S, Yildiz S, Gündoğan B, Atmaca M. Determination of health anxiety, anxiety, and somatosensory amplification levels in individuals with normal coronary angiography. *Psychiatry Res*. 2017;252:114-117.
- Tully PJ, Baker RA, Turnbull D, Winefield H. The role of depression and anxiety symptoms in hospital readmissions after cardiac surgery. *J Behav Med*. 2008;31(4):281-290. doi: 10.1007/s10865-008-9153-8
- Chandrababu R, Rathinasamy EV, Suresh C, Ramesh J. Effectiveness of reflexology on anxiety of patients undergoing cardiovascular interventional procedures: a systematic review and meta-analysis of randomized controlled trials. *J Advanc Nurs*. 2018;75(1):43-53.
- Kabalak AA. Effect of music on palliative care patients: historical development of therapy with Turkish music. *J Tradit Complem Med*. 2018;1(3):146-154. doi: 10.5336/jtracom.2017-57190

31. Casarin J, Cromi A, Sgobbi B, et al. Music therapy for preoperative anxiety reduction in women undergoing total laparoscopic hysterectomy: a randomized controlled trial. *J Minim Invasive Gynecol.* 2021;28(9):1618-1624. doi: 10.1016/j.jmig.2021.02.002
32. Avşar MT, Okudan RN, Kaya A. Hypnosis and anesthesia. *Int J Tradit Complement Med Res.* 2020;1(3):151-153.
33. Saadat H, Drummond-Lewis J, Maranets I, et al. Hypnosis reduces preoperative anxiety in adult patients. *Anesth Analg.* 2006;102(5):1394-1396. doi: 10.1213/01.ane.0000204355.36015.54
34. Zeng J, Wang L, Cai Q, Wu J, Zhou C. Effect of hypnosis before general anesthesia on postoperative outcomes in patients undergoing minor surgery for breast cancer: a systematic review and meta-analysis. *Gland Surg.* 2022;11(3):588-598. doi: 10.21037/gs-22-114
35. Bedaso A, Mekonnen N, Duko B. Prevalence and factors associated with preoperative anxiety among patients undergoing surgery in low-income and middle-income countries: a systematic review and meta-analysis. *BMJ Open.* 2022;12(3):e058187. doi: 10.1136/bmjopen-2021-058187