The Role of Biofield Energy Treated DMEM in Erectile Dysfunction using Detection of cGMP Levels in Human Endothelial Cell Line

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Abstract

The study was performed to assess the impact of Biofield Treated test item (DMEM medium) on Human Endothelial Hybrid Cell Line (EA. hy926) for the expression of cyclic guanosine monophosphate (cGMP). The test item was divided into three parts. The first part was received one-time Consciousness Energy Treatment by a renowned Biofield Energy Healer, Mahendra Kumar Trivedi and labeled as BT-I, while second part received two-times Biofield Treatment and is denoted as BT-II. The third part did not receive any types of treatment and denoted as untreated DMEM. The level of intracellular cGMP in the BT-I and BT-II groups showed a significantly (p≤0.001) increased by 296.06% and 339.37%, respectively in Ea. hy926 cells compared to the untreated DMEM group. These results suggest that BT-II group showed a significant improved the level of cGMP with respect to the BT-I group. Therefore, the Biofield Energy Healing Treatment can be used to treat the erectile dysfunction patients along with other associated disorders such as orgasmic disorders, frotteuristic disorder, female sexual arousal disorder, vaginismus, fetidistic disorder, sex addiction, hypoactive sexual desire disorder, premature or delayed ejaculation.

Keywords: Biofield Energy; cGMP; Endothelial Hybrid Cell; PDE-5; DMEM; Erectile Dysfunction

Abbreviation:
BT-I: One-time Biofield Energy Treated DMEM; BT-II: Two-times Biofield Energy Treated DMEM; CAM: Complementary and Alternative Medicine; NCCAM: National Center for Complementary and Alternative Medicine; DMEM: Dulbecco’s Modified Eagle’s Medium; cGMP: Cyclic guanosine 3’,5’-monophosphate; FBS: Fetal Bovine Serum

Introduction

Erectile dysfunction (ED) or impotence is the inability to get and keep an erection firm enough for sex. This is the most common sexual disorder in men across the globe [1]. Erectile dysfunction symptoms include persistent trouble in getting and keeping an erection and less sexual desire. Male sexual arousal is a complex process, which includes the coordination of the brain, hormones, emotions, nerves, muscles, and blood vessels [2]. ED might occur due to stress and severe mental health conditions. Besides, the literature data reported that physical cause of ED are heart disease, Parkinson’s disease, multiple sclerosis, atherosclerosis, high cholesterol, peronei’s disease high blood pressure, diabetes, obesity, sleep disorders, use of tobacco, alcoholism, injury of spinal cord and various metabolic syndromes such as high insulin levels, body fat around the waist, etc. [3]. Along with physical and psychological factors, impaired function of arteries and corpora cavernosa within the penis are the primary condition for impotence. While the lack of smooth muscle tone and imperfections in neuronal stimuli can lead to unsuccessful penile erection [4]. ED eventually leads to neuronal and cardiovascular disorders [5,6].

Nitric oxide synthase (NOS) enzymes are the major mechanism involved in ED, and it enhanced the production of cyclic guanosine monophosphate (cGMP), which results in smooth muscle relaxation and vasodilatation via NO/cGMP pathway [7,8]. Inadequate level of NO/cGMP leads to ED. Thus, cGMP is the major therapeutically
important target to overcome ED by inhibiting the cGMP-specific phosphodiesterase (PDE-5) enzyme [9]. However, sildenafil a PDE5 inhibitor has been used to treat ED, but it has life-threatening side-effects viz. cardiac arrhythmia and hypotension [10] and vascular or neuronal deficiency like diabetes [11]. Thus, some alternative or complementary therapeutic approach is the best method to treat impotence without any side effects. In recent years, a remarkable outstanding alternative Complementary and Alternative Medicine (CAM) therapies approach known as Biofield Energy Healing Treatment (The Trivedi Effect®) have been scientifically reported in various fields. The human Biofield Energy is a weak electromagnetic field around of the human body. The Trivedi Effect® can be able to transform all the living organisms and non-living materials through a unique energy transmission process [12].

The effects of the CAM therapies have great potential, which include Jiohe, Qi Gong, external qigong, Tai Chi, Reiki, therapeutic touch, deep breathing, yoga, polarity therapy, pranic healing, chiropractic/osseopathic manipulation, guided imagery, meditation, massage, homeopathy, hypnotherapy, special diets, progressive relaxation, acupuncture, acupunture, relaxation techniques, mindfulness, Rolfing structural integration, healing touch, movement therapy, pilates, Ayurvedic medicine, traditional Chinese herbs and medicines in biological systems both in vitro and in vivo [12]. Biofield Energy Healing as a CAM showed significant results in biological studies [13]. Also, the National Center for Complementary and Alternative Medicine (NCCAM), well-defined Biofield therapies in the subcategory of Energy Therapies [14]. The Trivedi Effect® has been reported to have created significant changes in the materials science [15-17], agricultural science [18,19], microbiology [20-22], biotechnology [23,24], improved bioavailability [25-27], skin health [27-29], nutraceuticals [30,31], cancer research [32,33], bone health [34-36], human health and wellness. Based on the outstanding benefits of The Trivedi Effect®, the present study was aimed to investigate the effect of Biofield Treated DMEM on the level of cGMP, in order to eradicate the ED using standard in vitro assay in Human Endothelial Hybrid Cell Line (EA.hy926).

**Material and Methods**

**Requirement of Chemicals**

Dulbecco’s Modified Eagle’s Medium (DMEM) and fetal bovine serum (FBS) were obtained from Life Technology, USA. Antibiotics solution (penicillin-streptomycin) was purchased from HiMedia, India, while ethylenediaminetetraacetic acid (EDTA) was purchased from Sigma, USA. Sildenafil citrate was purchased from Clearsynth, India. All the other chemicals used in this experiment were analytical grade procured from India.

**Cell Culture**

Human Endothelial Hybrid Cell Line (EA.hy926) was used as a test system in this experiment. The cells were maintained in DMEM growth medium for routine culture supplemented with 10% FBS. Growth conditions were maintained at 37°C, 5%CO2 and 95% humidity and subcultured by trypsinization followed by splitting the cell suspension into new flasks and supplementing with fresh cell growth medium. Three days before the start of the experiment, the growth medium of near-confluent cells was replaced with fresh phenol-free DMEM, supplemented with 10% charcoal-dextran stripped FBS (CD-FBS) and 1% penicillin-streptomycin [37].

**Study Design**

The experimental groups consisted of group 1 (G-I) with serum-free DMEM defined as the untreated DMEM. Group 2 (G-II) consisted of positive control (sildenafil citrate) at different concentrations. Further, group 3 (G-III) included DMEM medium (test item group) with the one-time Biofield Energy Treatment and denoted as BT-I, while the group 4 (G-IV) included the test item with the two-times Biofield Energy Treatment and indicated as the BT-II.

**Biofield Energy Healing Treatment Strategies**

The test item, DMEM was divided into three parts. One part of the test item was treated with the one-time Biofield Energy Healing Treatment by a renowned Biofield Energy Healer (The Trivedi Effect®) and coded as the Biofield Energy Treated DMEM (BT-I), while the second part was received the two-times Biofield Energy Healing Treatment and denoted as the BT-II. Further, the third part did not receive any treatment and defined as the untreated DMEM group. This Biofield Energy Healing Treatment was provided by a renowned Biofield Energy Healer, Mahendra Kumar Trivedi, remotely for ~3 minutes. The Biofield Energy Healer was located in the USA, while the test item was located in the research laboratory of Dabur Research Foundation, New Delhi, India. This Biofield Energy Treatment was administered for ~3 minutes through the Healer’s unique Energy Transmission process remotely to the test items under the standard laboratory conditions. Mahendra Kumar Trivedi never visited the laboratory in person, nor had any contact with the test item (DMEM medium). Further, the untreated DMEM group was treated with a “sham” healer for comparative purposes. The “sham” healer did not have any knowledge about the Biofield Energy Treatment. After that, the Biofield Energy Treated and untreated samples were kept in similar sealed conditions for experimental study.

**Assessment of PDE-5 Enzyme Inhibition**

The cells were counted using an hemocytometer and were seeded at a density of 0.4 X 10⁶ cells/well in DMEM with 10% FBS in 6-well plates. The details test procedure was followed as per Branton et al. 2018 [38-40]. Increase in cGMP level was determined as the following equation (1)

\[ \% \text{ Increase in intracellular cGMP level} = \left( \frac{(B-A)}{A} \right) \times 100 \text{----- (1)} \]

Where, B = OD of cells treated with test item and A is the OD of untreated wells (media treated).
Statistical Analysis

Values were expressed as Mean ± SEM of three independent experiments. For multiple group comparison, one-way analysis of variance (ANOVA) was used followed by post-hoc analysis by Dunnett’s test. Statistically significant values were set at the level of $p \leq 0.05$.

Results and Discussion

Detection of PDE-5 Enzyme Inhibition

The result of the intracellular cGMP level in Ea. hy926 cells is shown in Figure 1. Sildenafil citrate, used as positive control at 25 µM, 50 µM, and 100 µM exhibited a significant increase in the intracellular cGMP in Ea. hy926 cells by 34%, 84%, and 234%, respectively compared to the untreated DMEM group. The one-time Biofield Energy Treated DMEM (BT-I) group showed 5.03 pmol/mL, while two-times Biofield Energy Treated DMEM (BT-II) group showed 5.58 pmol/mL level of cGMP. Thus, BT-I group showed a significant ($p \leq 0.001$) increase in intracellular cGMP level by 296.06% in Ea. hy926 cells with respect to untreated DMEM. Similarly, the BT-II group showed a significant increase in the intracellular cGMP levels by 339.37% in Ea. hy926 cells than untreated DMEM. Thus, the data suggest that the two-times Biofield Energy Healing Treatment (BT-II) showed better results with respect to the increased cGMP level as compared with the one-time Biofield Treated DMEM group, which meant that the Biofield Energy Healing Treatment inhibited PDE-5 enzyme; resulting to the higher level of cGMP which can help to treat the erectile dysfunction (ED).

Figure 1: Effect of the test items (untreated and Biofield Treated DMEM) on the expression of intracellular cyclic guanosine monophosphate (cGMP) in human endothelial hybrid (Ea. hy926) cells. BT-I: One-time Biofield Energy Treated DMEM; BT-II: Two-times Biofield Energy Treated DMEM. ***$p \leq 0.001$ vs. untreated DMEM group.

The drugs, which are available in the market for the treatment of ED, are having serious side-effects along with short time treatment of ED [41]. Thus, ED can be treated with some alternative mode of treatment without having any type of adverse effects. Biofield Energy Healing Treatment is one of the best CAM approach worldwide to treat various clinical disorders along with a significant change in different scientific fields. The results are outstanding and can be comparable with the marketed synthetic drug, sildenafil citrate. Scientific literature results showed that relaxation in smooth muscles results in improved level of cGMP production leading to penile erection [42]. Increase in cGMP results in decreased level of intracellular calcium, which supports penile erection [43]. However, cGMP activation is regulated by the PDE-5 enzyme, which is abundant in the corpus cavernosum and results in improved blood circulation that leads to penile erection [44]. Biofield Energy Healing based DMEM and Biofield Energy Healing Treatment might work by the relaxation of penile smooth muscles, which could lead to penile erection.

Conclusion

Erectile dysfunction results an unsatisfactory sex life, mental stress or anxiety, embarrassment or low self-esteem, relationship problems, inability to get your partner pregnant, which can produce lot of pathological implications like hypertension, hypercholesterolemia, diabetes mellitus, cardiovascular disease, and depression. Thus, the Biofield Energy Healing Therapy is one of the best approach to treat various sexual disorders and its related diseases. The present study results showed that the Biofield Energy Treated DMEM significantly increased the level of intracellular cGMP in Ea. hy926 cells compared with the untreated DMEM group. PDE-5 is the predominant phosphodiesterase, while the intracellular cGMP level was significantly ($p \leq 0.001$) increased by 296.06% in the one-time Biofield Energy Treated DMEM group (BT-I) in Ea. hy926 cells compared to the untreated DMEM group. Additionally, the BT-II group i.e., the two-times blessed in DMEM also showed a significantly ($p \leq 0.001$) increased the level of cGMP by 339.37% compared with the untreated DMEM group. Henceforth, it can be
concluded that the Biofield Energy Treated (The Trivedi Effect®) DMEM were found to have a significant impact on cGMP level, which might significantly inhibit the PDE-5 enzyme that leads to the penile erection. Thus, the Biofield Therapy can be used for the treatment of numerous sexual disorders viz, hypoactive sexual desire disorder, fetishes disorder, dyspareunia, fructoseuria disorder, vaginismus, exhibitionistic disorder, voyeuristic disorder, sex addiction, premature or delayed ejaculation (or sexual malfunction or sexual disorder) improve normal sexual activity desire, including physical pleasure, arousal or orgasm, preference, and neurological disorders, hormonal imbalances, sexual performance, desire disorders (lack of sexual desire or interest in sex), marital or relationship problems, effects of a past sexual trauma, feelings of guilt, depression, and pain disorders (pain during intercourse).

References
1. McKinlay JB (2000) The worldwide prevalence and epidemiology of erectile dysfunction. Int J Impot Res 12: 6-11.
2. (1993) Consensus development conference statement. National Institutes of Health. Impotence. Int J Impot Res 5(4): 181-284.
3. (1993) National Institutes of Health Consensus Conference Impotence. NIH consensus development panel on impotence. JAMA 270(1): 83-90.
4. Dean RC, Lue TF (2005) Physiology of penile erection and pathophysiology of erectile dysfunction. Urol Clin North Am 32(4): 379-395.
5. Billups KL (2005) Sexual dysfunction and cardiovascular disease: Integrative concepts and strategies. Am J Cardiol 96: 57-61.
6. Thorvea VS, Kharisgar DA, Vyawahare NS, Joshi VS, Ingale KG, et al. (2011) Diabetes-induced erectile dysfunction: Epidemiology, pathophysiology and management. J Diabetes Complications 25(1): 129-136.
7. Burnett AL (2002) Nitric oxide regulation of penile erection: Biology and therapeutic implications. J Androl 23(5): 20-26.
8. Morelli A, Filippis V, Vignozzi L, Mancina R, Maggi M (2006) Physiology of erectile function: an update on intracellular molecular processes. EAU-EBU Update Ser 4(3): 96-108.
9. Andersson KE (2011) Mechanisms of penile erection and basis for pharmacological treatment of erectile dysfunction. Pharmacol Rev 63(4): 811-859.
10. Chamsi Pacha H (2001) Sildenafil (Viagra) and the heart. J Fam Community Med 8(2): 63-66.
11. Doggrell S (2007) Do vardenafil and tadalfil advantages over sildenafil in the treatment of erectile dysfunction. Int J Impot Res 19(3): 281-295.
12. Rubik B (2002) The biofield hypothesis: Its biophysical basis and role in medicine. J Altern Complement Med 8(6): 703-717.
13. Barnes PM, Bloom B, Nahin RL (2008) Complementary and alternative medicine use among adults and children: United States, 2007. Natl Health Stat Report 10(12): 1-23.
14. Frass M, Strasal RP, Friehs H, Mühner M, Kundi M, et al. (2012) Use and acceptance of complementary and alternative medicine among the general population and medical personnel: A systematic review. Ochsner J 12(1): 45-56.
15. Trivedi MK, Tallapragada RM (2008) A transcendental to changing metal powder characteristics. Met Powder Rep 63(9): 22-28, 31.
16. Trivedi MK, Nayak G, Patil S, Tallapragada RM, Latyal O (2015) Studies of the atomic and crystalline characteristics of ceramic oxide nano powders after bio field treatment. Ind Eng Manage 4(3): 161.
17. Trivedi MK, Nayak G, Patil S, Tallapragada RM, Latyal O, et al. (2015) Effect of biofield energy treatment on physical and structural properties of calcium carbide and praseodymium oxide. International Journal of Materials Science and Applications 4(6): 390-395.
18. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Morphological characterization, quality, yield and DNA fingerprinting of biofield energy treated alphonso mango (Mangifera indica L.). Journal of Food and Nutrition Sciences 3(6): 245-250.
19. Trivedi MK, Branton A, Trivedi D, Nayak G, Mondal SC, et al. (2015) Evaluation of biochemical marker- Glutathione and DNA fingerprinting of biofield energy treated Oryza sativa. American Journal of BioScience 3(6): 243-248.
20. Trivedi MK, Branton A, Trivedi D, Nayak G, Charan S, et al. (2015) Phenotyping and 16S rDNA analysis after biofield treatment on Citrobacter braakii: A urinary pathogen. J Clin Med Genom 3: 129.
21. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) Evaluation of biofield modality on viral load of Hepatitis B and C viruses. J Antivir Antiretrovir 7: 83-88.
22. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) An impact of biofield treatment: Antimycobacterial susceptibility potential using BACTEC 460/MGITB System. Mycobact Dis 5: 189.
23. Trivedi MK, Patil S, Shettigar H, Bairwa K, Jana S (2015) Phenotypic and biotypic characterization of Klebsiella oxytoca: An impact of biofield treatment. J Microb Biochem Technol 7: 205-205.
24. Nayak G, Altekar N (2015) Effect of biofield treatment on plant growth and adaptation. J Environ Health Sci 1(2): 1-9.
25. Branton A, Jana S (2017) The influence of energy of consciousness healing treatment on low bioavailable resveratrol in male Sprague Dawley rats. International Journal of Clinical and Developmental Anatomy 3(3): 9-15.
26. Branton A, Jana S (2017) The use of novel and unique biofield energy healing treatment for the improvement of poorly bioavailable compound, berberine in male Sprague Dawley rats. American Journal of Clinical and Experimental Medicine 5(4): 138-144.
27. Branton A, Jana S (2017) Effect of the biofield energy healing treatment on the pharmacokinetics of 25-hydroxyvitamin D$_3$ [25(OH)D$_3$] in rats after a single oral dose of vitamin D$_3$. American Journal of Pharmacology and Phytotherapy 2(1): 1-18.
28. Kinney JP, Trivedi MK, Branton A, Trivedi D, Nayak G, et al. (2017) Overall skin health potential of the biofield energy healing based herbomineral formulation using various skin parameters. American Journal of Life Sciences 5(2): 65-74.
29. Singh J, Trivedi MK, Branton A, Trivedi D, Nayak G, et al. (2017) Consciousness energy healing treatment based herbomineral formulation: A safe and effective approach for skin health. American Journal of Pharmacology and Phytotherapy 2(1): 1-10.
30. Trivedi MK, Branton A, Trivedi D, Nayak G, Pilkend WD, et al. (2017) A Systematic study of the biofield energy healing treatment on physicochemical, thermal, structural, and behavioral properties of magnesium gluconate. International Journal of Bioorganic Chemistry 2(3): 135-145.
31. Trivedi MK, Branton A, Trivedi D, Nayak G, Pilkend WD, et al. (2017) Chromatographic and spectroscopic characterization of the consciousness energy healing treated Withania Somnifera (ashwagandha) root extract. European Journal of Biophysics 5(2): 38-47.
32. Trivedi MK, Patil S, Shettigar H, Mondal SC, Jana S (2015) The potential impact of biofield treatment on human brain tumor cells: A time-lapse video microscopy. J Integr Oncol 4: 141.
33. Trivedi MK, Patil S, Shettigar H, Gangwar M, Jana S (2015) *In vitro* evaluation of biofield treatment on cancer biomarkers involved in endometrial and prostate cancer cell lines. J Cancer Sci Ther 7: 253-257.

34. Anagnos D, Trivedi K, Branton A, Trivedi D, Nayak G, et al. (2018) Influence of biofield treated vitamin D₃ on proliferation, differentiation, and maturation of bone-related parameters in MG-63 cell-line. International Journal of Biomedical Engineering and Clinical Science 4(1): 6-14.

35. Lee AG, Trivedi K, Branton A, Trivedi D, Nayak G, et al. (2018) The potential benefits of biofield energy treated vitamin D₃ on bone mineralization in human bone osteosarcoma cells (MG-63). International Journal of Nutrition and Food Sciences 7(1): 30-38.

36. Stutheit ME, Trivedi K, Branton A, Trivedi D, Nayak G, et al. (2018) Biofield energy treated vitamin D₃; Therapeutic implication on bone health using osteoblasts cells. American Journal of Life Sciences 6(1): 13-21.

37. Czekanska EM, Stoddart MJ, Richards RG, Hayes JS (2012) In search of an osteoblast cell model for *in vitro* research. Eur Cells Mater 24: 1-17.

38. Alice B, Snehasis J (2018) Evaluation of phosphodiesterase-5 inhibitory potential of biofield energy treated DMEM by determining cGMP level in human endothelial cell line. Invest Gynecol Res Women’s 2(4): 1-5.

39. Manosroi A, Tangjai T, Chankhampan C, Manosroi W, Najarut Y, et al. (2017) Potent phosphodiesterase inhibition and nitric oxide release stimulation of anti-impotence thai medicinal plants from “MANOSROI III” Database. Evidence-Based Complementary and Alternative Medicine 2017: 2017.

40. (2013) Abcam. PDE activity assay kit (colorimetric): instructions for use. Version 1. Last updated: 17.

41. Wylle MG (2005) The underlying pathophysiology and causes of erectile dysfunction. Clin Cornerstone 7(1): 19-27.

42. Burnett AL (2006) The role of nitric oxide in erectile dysfunction: Implications for medical therapy. J Clin Hypertens (Greenwich) 8: S3-S6.

43. Corbin JD (2004) Mechanisms of action of PDE5 inhibition in erectile dysfunction. Int J Impot Res 16: 4-7.

44. Corona G, Mondaini N, Unger A, Razzoli E, Rossi A, et al. (2011) Phosphodiesterase type 5 (PDE5) inhibitors in erectile dysfunction: the proper drug for the proper patient. J Sex Med 8(12): 3418-3432.

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