

The journal of the American Academy of Medical Acupuncture with acupuncture research articles, reviews, abstracts and case studies.

# Medical Acupuncture

A Journal For Physicians By Physicians

Volume 13 / Number 1

*"Aurum Nostrum Non Est Aurum Vulgi"*

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## Male Sexual Impotence, Sildenafil Citrate, And Acupuncture

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### ABSTRACT

The introduction of sildenafil citrate has revolutionized the treatment of male sexual impotence. Yet this pharmacological approach is not without adverse effects. This article details the various causes of impotence and sexual dysfunction, and the acupuncture points that have been recommended for its treatment.

### KEY WORDS

Male Sexual Impotence, Sexual Dysfunction, Acupuncture, Neurotransmitters

### INTRODUCTION

#### Biology of Sexual Function

Sexual function essentially relies on the integrity and balance of the autonomic nervous system (Figure 1). Naturally, the biochemical mechanism involves neurotransmitters and neuropeptides.<sup>1,2</sup> In the central nervous system, the neurotransmitters include dopamine, serotonin, acetylcholine, nitric oxide, and norepinephrine, and other neurotransmitters. Neuropeptides include corticotropin,  $\alpha$ -melanocyte stimulating-hormone and related peptides, opioid peptides, and oxytocin, among other neuropeptides.

At the level of the penile tissue, neurotransmitters include norepinephrine, acetylcholine, and nitric oxide. Neuropeptides include vasoactive intestinal polypeptide, peptide histidine isoleucine, peptide histidine methionine, neuropeptide Y, and endothelins. Among all these, dopamine and norepinephrine are the major vasoconstrictors, and acetylcholine and nitric oxide are the major vasorelaxors.

There are many causes of male sexual impotence.<sup>3</sup> Common presentations of sexual dysfunction include: loss of libido, erectile

dysfunction, premature ejaculation, retarded ejaculation, and orgasmic failure.

## **PHYSICAL CAUSES**

### **Anatomical Abnormalities**

There are many causes of male sexual impotence.<sup>3</sup> Any congenital or acquired physical conditions affecting the anatomical pathways of sexual function may result in dysfunction. It is common to see physical trauma involving the spinal cord or the pelvic areas with injuries to the penile cavernous blood vessels.

### **Vascular Disorders**

Any blockage of the artery around the penis, such as in arteriosclerosis, may jeopardize penile erectile function. Arteriosclerosis is influenced by risk factors including smoking, obesity, high cholesterol levels, hypertension, and diabetes.

### **Metabolic Disorders**

According to statistics, up to 75% of male diabetic patients may have penile erectile dysfunction; diabetes may cause significant damage to the cardiovascular system as well as to the peripheral nerves.<sup>4</sup>

### **Neurological Disorders**

Diseases affecting the central nervous system, such as cerebrovascular accidents, Parkinson's disease, and multiple sclerosis, may cause temporary or even permanent disturbance in sexual functions. Not uncommonly, persons with paraplegia or quadriplegia may have the same problem due to sustained pathology in the spinal cord.

### **Surgical Procedures**

Some men who undergo operations for prostate, colorectal, or bladder cancer may sometimes experience impotence because of disruption of the pudendal nerves. Radiation in these areas may have similar effects.

### **Alcohol and Medications**

Alcohol has well-documented negative effects on both testosterone levels and libido. Many cardiovascular medications may cause sexual potency problems, affecting the arterial supply throughout the body, including the penis. The medications most likely to affect potency are central sympathomimetics, b-blockers, digitalis, a-blockers, and anti-arrhythmics.

### **Illegal Drugs**

Street drugs such as PCP (angel dust), opiates, stimulants,

psychedelics, volatile nitrites, marijuana, diazepam, and barbiturates all have negative effects on sexual functions.

**Aging Effects**

There is a gradual reduction in testosterone levels with increasing age. The main change is a decline in the length and intensity of various phases of the sexual response cycle.

**Hormonal Dysfunction 5**

DHEA (dehydroepiandrosterone) is manufactured mainly in the adrenal cortex, and testosterone mainly in the testes in males. DHEA is regulated by corticotropin and testosterone, by luteinizing hormone-releasing hormone (luliberin). These hormones increase sex drive and maintain libido. Lower levels of these hormones may result in loss of libido and abnormal sexual behavior in males.

**PSYCHOLOGICAL CAUSES**

**Inhibition**

Inhibition can be caused by restrictive upbringing. A child's experience of his family's attitudes toward sexuality and personal relationships is likely to have a profound effect on later psychosexual development.

**Traumatic Early Sexual Experiences**

Childhood sexual experiences, especially incest or rape, can be associated with subsequent sexual difficulties.

**Performance Anxiety**

Obsessive concern with adequate sexual performance is one of the most common reasons for persistence of sexual dysfunction. "Performance anxiety" is related to an excessive need to perform or to satisfy the partner, with little heed paid to the individual's own pleasure and satisfaction.

**Negative Emotions**

Psychological reasons for impotence include negative emotions toward sexuality, such as anxiety, guilt, anger, or disgust. These conditions may produce a so-called adrenergic response, anxiety arising from psychological conflicts, and cause an imbalance of the autonomic nerve functions. Anti-anxiety medications can also be impediments to sexual performance.

Table 1. Review of Acupuncture Points Recommended for Impotence				
Acupuncture Point	Location	Anatomy	Physiological Action	Condition Treated*

CV 1	Midpoint between anus and scrotum (male) or posterior labial commissure (female)	Perineal nerve	Enhances sexual muscle function	ED, RE, OF
CV 2	Midpoint of superior margin of symphysis pubis	Dorsal blood vessels and nerves of penis, iliohypogastric nerve	Enhances penile circulatory and neural control	ED
CV 3	Midline of abdomen, 4 cun below CV 8	Inferior hypogastric plexus	Enhances peripheral autonomic neural control (mainly parasympathetic)	ED
CV 4	Midline of abdomen, 3 cun below CV 8	Inferior hypogastric plexus	Enhances peripheral autonomic neural control (mainly parasympathetic)	ED
CV 6	Midline of abdomen, 1.5 cun below CV 8	Bifurcation of abdominal aorta	Increases blood flow to the penis	ED
GV 1	Midpoint between coccyx and anus	Coccygeal nerve, hemorrhoid nerve, coccygeal sympathetic ganglion	Enhances sexual muscle function, major autonomic neural control	ED, PE, RE, OF
GV 4	Midpoint between L2 and L3 spinal processes	Medial branch of posterior primary ramus	Major spinal sympathetic control	PE, RE, OF
GV 16	Midline of spine between C1 posterior tubercle and occipital bone	External surface of medulla oblongata	Stimulates the medulla oblongata	LL, ED, PE, RE, OF
GV 20	On the midline of head ,midpoint of the line connecting the apexes of the two auricles	External surface of cortex and hypothalamus	Major central neural control	LL, ED, PE, RE, OF
BL 15	1.5 cun from midline of spine between T5 and	Thoracic sympathetic ganglion	Impulse entering cardiac and pulmonary plexus	ED, PE

	T6			
BL 18	1.5 cun from midline of spine between T9 and T10	Thoracic sympathetic ganglion	Stimulates sympathetic ganglia and celiac ganglion, increases arterial blood flow, stimulates adrenal cortex, and releases testosterone	LL, ED, PE, RE, OF
BL 19	1.5 cun from midline of spine between T10 and T11	Thoracic sympathetic ganglion		LL, ED, PE, RE, OF
BL 23	1.5 cun from midline of spine between L2 and L3	Lumbar sympathetic ganglion		LL, ED, PE, RE, OF
BL 28	1.5 cun from midline of spine at level of S2 sacral foramen	S2 Sacral nerve to pelvic nerve (nervus erigentes)	Stimulates penile erection via pelvic nerve and inferior hypogastric ganglion	ED, OF
BL 32	1 cun from midline of spine at S2 sacral foramen	S2 Sacral nerve to pelvic nerve (nervus erigentes)	Stimulates penile erection via pelvic nerve and inferior hypogastric ganglion	ED, OF
SP 6	3 cun superior to tip of medial malleolus on posterior border of tibia	Tibial nerve	Acts on afferent impulses to sacral cord segments and inferior hypogastric plexus (parasympathetic)	ED, OF
KI 1	On sole of foot between 2nd and 3rd metatarsal bones, proximal to metatarsal joint	Stimulates superficial and deep arterial arches of the foot	Afferent stimulation via sympathetic nerves to midbrain and hypothalamus	PE, RE, OF
KI 3	In depression between medial malleolus and Achilles tendon	Tibial nerve	Acts on afferent impulses to sacral cord segments and inferior hypogastric plexus (parasympathetic)	ED, OF
HT 7	On volar wrist crease on radial side of flexor carpi ulnaris	Ulnar nerve	Acts on afferent impulses to thoracic cord segments and cardiac and pulmonary plexus	ED, OF
PC 6	2 cun proximal to volar wrist	Medial nerve	Acts on afferent impulses to thoracic	ED, OF

	crease between tendons of palmary longus		cord segments and cardiac and pulmonary plexus	
ST 30	5 cun below umbilicus, 2 cun lateral to CV 2	Ilio-inguinal nerve	Acts on afferent tactile stimulation to sexual skin areas (root of penis and scrotum)	LL, ED
*ED indicates erectile dysfunction; RE, retarded ejaculation; OF, orgasmic failure; PE, premature ejaculation; LL, loss of libido.				

**Depression**

Depression can be a cause of sexual impotence. The medications used to treat depression may also produce potency problems. The tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors can cause loss of libido, retard ejaculation, and cause orgasmic failure.

**SILDENAFIL FOR MALE IMPOTENCE**

Many men have been freed from worry about sexual performance due to the discovery of sildenafil citrate.<sup>6-13</sup> (Sildenafil was approved by the US Food and Drug Administration March 1998, and in Canada, April 1999). The use of sildenafil has extended to many countries in Asia and Europe.

During normal penile erection, nitric oxide is released in the endothelial cells of the corpora cavernosa. Nitric oxide then stimulates the formation of cyclic guanosine monophosphate (cGMP) with guanylate cyclase. As a result, the smooth muscles are relaxed which leads to penile erection as blood rushes into the cavernous spaces. Sildenafil is a selective inhibitor of the naturally occurring enzyme phosphodiesterase type 5, which causes an erection to subside after orgasm.<sup>12</sup> Therefore, sildenafil would be expected to restore the natural erectile response to sexual stimulation and is used to treat erectile dysfunction.

Sildenafil is fairly effective for male erectile dysfunction.<sup>11</sup> However, it is not effective for loss of libido, ejaculatory dysfunction, or orgasmic failure. Reportedly, adverse effects from sildenafil include:

- o Headaches. In clinical trials, approximately 10% of men developed severe headaches.<sup>10</sup>
- o Vision Problems. Approximately 3% of men in clinical trials developed temporary vision problems ranging from blurred vision to blue or green hollow effects.<sup>14</sup>
- o Vasosyncope. A man who takes sildenafil in combination with nitroglycerin or other anti-hypertensive drugs could develop

vasosyncope, resulting in shock.

o Priapism. Theoretically, certain men with sickle cell anemia, leukemia, or urethral inflammation could develop priapism, which may lead to penile tissue damage.

o Coital Coronaries. Taking sildenafil could mask cardiac disease; impotence is sometimes an early indicator for cardiac disease. Some patients with cardiac disease may die from excessive sexual strain.

### **ACUPUNCTURE FOR MALE IMPOTENCE**

For thousands of years in China, the practice of polygamy compelled emperors of Chinese dynasties to explore sexual therapies, including herbal medicine and acupuncture. (Each emperor routinely had 3,000 wives.) During the 16th and early 17th centuries, sexology treatises were written by Taoists concerning mystical sexual alchemy. These treatises include approaches such as acupuncture and moxibustion. It was documented that the acupuncture point nearest the Cinnabar field (CV 6) could be the first acupuncture point for treating male sexual impotence.<sup>15</sup> Chinese physicians and acupuncturists have considered the Cinnabar field of supreme significance in their respective domains. In the later centuries, sexual therapy with acupuncture was further developed. Nevertheless, the Chinese believed that the kidneys were responsible for sexual function. Anyone with sexual dysfunction was labeled as having "kidney failure."

The author has conducted an informal review of the acupuncture points recommended to treat male sexual impotence in many acupuncture texts, and has studied and practiced these points. My conclusion is that certain points are effective for specific sexual dysfunctions. The following (Table 1) attempts to appreciate their efficacy by analyzing the individual anatomical and physiological relationships.

### **DISCUSSION**

Chinese research of acupuncture has reported that acupuncture influences the activities of norepinephrine, acetylcholine, and their biological enzymes in the central nervous system.<sup>16-20</sup> During acupuncture, both synthesis and use of central norepinephrine are accelerated. As the rate of use exceeds that of synthesis, norepinephrine content decreases.

The effect of acupuncture is correlated intimately with the alteration of the acetylcholine level in the brain. With appropriate acupuncture points, acupuncture may activate the nitric oxide-cGMP pathway<sup>21,22</sup> resulting in increase of concentration of cGMP in the corpora cavernosa. The synergistic effect of cGMP and acupuncture might be facilitated by endogenous acetylcholine. Needling acupuncture point GV 20 increased cGMP in the plasma of healthy rabbits.<sup>22</sup>

Experimental results<sup>23</sup> have shown that needling acupuncture point LI 4 at low frequency (4 Hz) may release endorphins, and high frequency (200 Hz) may release serotonin. In animal studies, it was found that these changes in neurotransmitters affect the animals' sexual performance.<sup>23</sup> According to some studies in rats, increase of endorphin may suppress copulatory behavior, and decrease of endorphin may increase mounting and intromission latencies. Naloxone induces successful copulatory behavior in sexually inactive rats.<sup>23</sup>

Careful selection of acupuncture points and stimulus variables<sup>24</sup> that manipulate different neurotransmitters and peptides could be the key to success in using acupuncture for sexual impotence.

### **CONCLUSION**

While sildenafil is reported to be highly effective, its efficacy is confined to penile erection and it can produce adverse effects. Acupuncture treats not only the sexual dysfunction symptoms, but also some of the physical and psychological causes. In addition to these advantages, acupuncture has been found to have no known side effects.<sup>24</sup> However, acupuncture for male sexual impotence has not been widely practiced and has been underrated. Its efficacy in male sexual impotence deserves further study.

### **REFERENCES**

1. Argiolas A, et al. Neuromodulation of penile erection: an overview of the role of neurotransmitters and neuropeptides. *Prog Neurobiol.* 1995;47:235-255.
2. Wang C, et al. The influence of acupuncture on the acetylcholine level in various regions of rat brain. Presented at: National Symposia of Acupuncture and Moxibustion and Acupuncture Anaesthesia; Beijing, China; June 1-5, 1979.
3. Hawton K. *Sex Therapy: A Practical Guide.* New York, NY: Oxford University Press; 1985.
4. Price DE, Gingell C, Gepi-Attee S, Wareham K, Yates P, Boolell M. Sildenafil: study of a novel oral treatment for erectile dysfunction in diabetic men. *Diabet Med.* 1998;15:821-825.
5. Crenshaw TL. *The Alchemy of Love and Lust: How Our Sex Hormones Influence Our Relationships.* New York, NY: Pocket Books; 1997.
6. Vaughan SC. *Viagra, A Guide to the Phenomenal Potency-Promoting Drug.* New York, NY: Pocket Books; 1998.
7. Derry F, Gardner BP, Glass C, et al. Sildenafil (Viagra): a double-blind, placebo-controlled, single-dose, two-way crossover study in men with erectile dysfunction caused by traumatic spinal cord injury [abstract 702]. *J Urol.* 1997;157(suppl):181.

8. Wagner G, Montorsi F, Auerbach S, Collins M. Sildenafil citrate (Viagra) improves erectile function in elderly patients with erectile dysfunction. *J Gerontol A Biol Sci Med Sci.* 2001;56:M113-M119.
9. Auerbach S. Sildenafil (Viagra) in the treatment of erectile dysfunction: efficacy in elderly patients. Presented at: Annual Scientific Meeting of the American Geriatric Society/American Federation for Aging Research; Seattle, Wash; May 1998.
10. Gingell C, Buvat J, Jardin A, et al. Sildenafil citrate (Viagra): an oral treatment for erectile function: 1-year, open-label, extension studies. *Int J Clin Pract Suppl.* 1999;102:30-31.
11. Morales A, Gingell C, Collins M, Wicker PA, Osterloh IH. Clinical safety of oral sildenafil citrate (Viagra) in the treatment of erectile dysfunction. *Int J Impot Res.* 1998;10:69-73.
12. Goldstein I, Lue TF, Padma-Nathan H, et al. Oral sildenafil in the treatment of erectile dysfunction. *N Engl J Med.* 1998;338:1397-1404.
13. Ballard SA, et al. Sildenafil, an inhibitor of phosphodiesterase type 5, enhances nitric oxide mediated relaxation of human corpus cavernosum [abstract]. *Int J Impot Res.* 1996;8:103.
14. Andersson KE, Wagner G. Physiology of penile erection. *Physiol Rev.* 1995;75:191-236.
15. Viagra [package insert]. New York, NY: Pfizer Inc; 1998.
16. Shanghai College of Traditional Medicine. *Acupuncture: A Comprehensive Text.* Seattle, Wash: Eastland Press; 1981.
17. Xu S, et al. Effects of cholinergic and dopaminergic systems of the caudate nucleus in acupuncture analgesia. Presented at: Second National Symposium on Acupuncture and Moxibustion and Acupuncture Anesthesia; Beijing, China; August 1984.
18. Qin C, et al. Effect of noradrenergic descending system on the acupuncture analgesia. Presented at: Second National Symposium on Acupuncture and Moxibustion and Acupuncture Anesthesia; Beijing, China; August 1984.
19. Ren M, et al. The effect of hemicholine, choline, eserine and atropine on acupuncture analgesia in the rat. Presented at: National Symposia of Acupuncture and Moxibustion and Acupuncture Anaesthesia; Beijing, China; June 1-5, 1979.
20. Ai M, et al. Observations on cholinesterase activity in the brain of eserine-pretreated rats after electro-acupuncture. Presented at: National Symposia of Acupuncture and Moxibustion and Acupuncture Anaesthesia; Beijing, China; June 1-5, 1979.
21. Han J, et al. The study of turnover rate of CNS norepinephrine during acupuncture analgesia in the rat. Presented at: National Symposia of Acupuncture and Moxibustion and Acupuncture Anaesthesia; Beijing, China; June 1-5, 1979.
22. Lu Z, et al. The relationship between cAMP and cGMP in rat brain and acupuncture analgesia. Presented at: Second National Symposium on Acupuncture and Moxibustion and Acupuncture

Anesthesia; Beijing, China; August 1984.

23. Pei T, et al. An experimental observation on the content of cAMP and cGMP in rabbit's plasma due to acupuncture by reinforcing and reducing methods. Presented at: Second National Symposium on Acupuncture and Moxibustion and Acupuncture Anesthesia; Beijing, China; August 1984.

24. Wong J, Cheng R. The Science of Acupuncture Therapy. Hong Kong: Kola Mayland Co; 1984.

25. Wong J. A Manual of Neuro-Anatomical Acupuncture, Vol. I: Musculo-Skeletal Disorders. Toronto, Ontario: Toronto Pain and Stress Clinic; 1999.

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