Journal of
Environmental and Applied Bioresearch
Published online July 15, 2015 (http://www.scienceresearchlibrary.com)

ISSN: 2319 8745
Vol. 03, No. 03, pp. 127 - 132

Review Article **Open Access**

PREMATURE EJACULATION: PREVALENCE, PHYSIOLOGY AND CURE AREA

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Received: June 22, 2015/ Accepted : June 24, 2015

Abstract

Premature ejaculation is a frustrating problem where ejaculation occurs earlier than desired causing distress to either one or both partner, harm relationships and impairment in life quality. It is the most common male sex disorder which is more prevalent than erectile dysfunction. Prevalence of this dysfunction ranges from 20% to 40% in all age groups of men and is highest in Asia, Central America, and South America. But very few men with premature ejaculation receive medical advice due to shyness. The exact cause of this dysfunction is not known but low amount of serotonin in the brain can be a cause. Treatment of this dysfunction includes non-medical and medical therapies. Non-medical therapies include psychological and behavioural therapies and using drugs for treatment of this dysfunction are part of medical therapies. Herbal remedies are also very effective in curing this sexual disorder and are economical, free from chemicals. In the present study, focus is given on physiology, prevalence and treatment of premature ejaculation. This review also summarizes mode of action of various conventional drugs and plants which are used in curing the male dysfunction.

Keywords: Premature ejaculation; behavioural therapies; psychological therapies; conventional drugs; herbal drugs

Introduction

Sexual disorders are responsible for ruining pleasurable sex life which can affect overall well-being, marital and family life badly. Sexual disorder is any disorder related to sexual desire, functioning or performance. Impairment in any of the three phases of normal sexual function i.e. desire, arousal and orgasm is a sexual disorder or dysfunction. In women, low sexual desire, difficulty in reaching orgasm, dyspareunia (pain during sex) and vaginismus (condition in which muscles around vagina spasm cause closing of vagina) are some of the common sexual problems while in men, erectile dysfunction and ejaculatory dysfunction like premature ejaculation are most common sexual disordes. Premature ejaculation is a most common male dysfunction [more than 40% men are affected (Sexual Advice Association, 2011)] where ejaculation occurs sooner than he or his partner wishes, either before or shortly after penetration (Montague et al., 2004, Rosen, 2000). In premature ejaculation, ejaculation occurs before 2 minutes after vaginal insertion of the penis (Waldinger et al., 2005). The inability of men to control the ejaculation timing can lead to reduce confidence in him and reason of major distress to him and his partner. Premature ejaculation can occur at any age but is most common in young generation chiefly in teens and twenties (Sexual Advice Association, 2011). This dysfunction is mainly associated with age and lifestyle of men (Schiavi, 1995) and problems like depression, anxiety (Quek et al., 2008), social phobias (Tignol, 2006), diabetes (El-Sakka, 2003), erectile

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dysfunction (Jannini et al., 2005) and prostate diseases (Screponi et al., 2001). Disturbances in serotonergic neurotransmission, serotonin (5-HT) receptors and oxytocinergic neurotransmission in the central nervous system mediate this dysfunction. This dysfunction is mainly of two types; life-long (primary) and acquired (secondary). Lifelong premature ejaculation is caused by factors such as neurobiological or genetic, whereas factors like infection, opiates withdrawl, anxiety of performance and concerns regarding relationship are responsible for acquired premature ejaculation.

Prevalence of Premature ejaculation

Around 20% to 30% of world's male population is affected by premature ejaculation (Hatzimouratidis et al., 2010). Tang and Khoo, 2011, recruited a total of 207 men [97 (46.9%) Malay, 57 (27.5%) Chinese, and 53 (25.6%) Indian] and found prevalence of premature ejaculation was 40.6%. Porst et al., 2007 reported its prevalence of 22.7% in internet based survey of 12,133 men in United States, Italy and Germany which was higher than erectile dysfunction prevalence. Over the past few decades, premature ejaculation prevalence has remained relatively constant (Patrick et al., 2005). In 2005, Laumann et al. found its prevalence rate 27% to 30% in his study comprising of 13,618 men of 29 countries. Aschka et al. 2001 reported its prevalence rate of 66%. Laumann et al., 1999 found its 30% prevalence in his study comprising of 1410 men aged 18-59 years. According to Global study of sexual attitudes and behaviours (GSSAB) (American Psychiatric Association, 2000; World Health Organization, 1994), which included 27,500 men and women of age group 40 to 80 worldwide, showed premature ejaculation prevalence rate of 30%. This male dysfunction has highest prevalence in Southeast Asia, Central America and South America (World Health Organization, 1994). Ernst et al., 1993 and Fugl-Meyer et al., 1993 reported only 4% of prevalence rates of premature ejaculation. In United States, Laumann et al., 1994 surveyed 1410 men between ages of 18 and 59 and found 29% of premature ejaculation prevalence. Prevalence of premature ejaculation is negatively associated with education (Laumann et al., 2005) as more educated men are likely to have improved mental and physical health. Status of health is much more directly associated with premature ejaculation than education status. Income or occupation status shows no or little association with prevalence of this dysfunction. Marital status of men also not related with premature ejaculation prevalence. Advancing age of men shows no association with this disorder prevalence. Premature ejaculation prevalence is constant for all age groups from 18 to 59 years old. Men with limited sexual experiences have higher chances of this dysfunction (Kaplan, 1974).

Physiology of Premature ejaculation

In normal ejaculation, which is a spinal reflex process, is composed of four components; excitement, plateau, ejaculation and orgasm (McMahon and Samali, 1999). Ejaculatory process involves emission and expulsion of semen. Emission involves rhythmic contractions of smooth muscles in prostate, seminal vesicles, and vas deferens resulting in secretion and deposition of seminal fluid in posterior urethra. Expulsion involves rhythmic contractions of pelvic floor and the bulbo-spongiosus muscles and forcefully advancement of semen through the urethral meatus.

Ejaculation process involves vast neural control network and involves specific spinal, supraspinal and peripheral neural pathways. Stimulation of glans penis and several supraspinal triggers ejaculation. Coordination of neurotransmitters like 5-hydroxytryptamine (5-HT), dopamine, acetylcholine, adrenaline, neuropeptides, oxytocin, gama aminobutyric acid (GABA) and nitrous oxide (NO) at spinal cord level regulates ejaculatory reflexes. Several psychological and biological factors are responsible for this dysfunction. Factors such as early sexual experiences, anxiety, using poor techniques of ejaculation control, infrequent sex and psychodynamic constitute psychological factors (Sadeghi-Nejad and Watson, 2008). Biological factors are dysfunctioning of 5-HT receptors, hypersensitivity of penis, hyperarousability, hyperexcitable ejaculatory reflexes, endocrinopathy etc. 5-HT or serotonin is most investigated neurotransmitter and its lower syneptic levels in ejaculatory modulation region (central nervous system) or 5-HT 2C receptor hyposensitivity might be associated with premature ejaculation (Abdel-Hamid et al., 2009).

Current Treatment Options for Premature ejaculation

Premature ejaculation is a dysfunction linked with mind and body. Therefore, Psychosexual counseling which involves behavioural and cognitive or sex therapies are most commonly used for management of premature ejaculation. In behavioural therapies, focus is on physical aspect of premature ejaculation and includes squeeze technique and stop/start technique. Squeeze technique involves erection of penis by squeezing of glans penis between thumb and finger. Stop/start technique is a technique in which individual (or his partner) begins to masturbate and stop before he reaches the ejaculation point. Masturbation should be started again once the sensation of ejaculation has diminished and stopped before ejaculation. In third occasion, masturbation is again resumed but this time ejaculation is permitted. Cognitive or sex therapies involves communication improvement between partners, increasing self-confidence and sexual skills by reducing anxieties

related to sex (Barnes and Eardley, 2007). These therapies are only beneficial for men (50-60%) with less troublesome premature ejaculation. Long-term treatment of premature ejaculation is with drugs. However, effective treatment of premature ejaculation is by combining both psychological and pharmacological approaches.

Treatment of premature ejaculation by conventional drugs

Pharmacological treatment is the first line cure of lifelong premature ejaculation and chiefly includes; antidepressants and local anaesthetics. Opiates, alpha-blockers and PDE5Is are also used but their exact role in treating premature ejaculation is not much clear. Among these pharmacological treatments, only premject sprays (local anaesthetics) has been licenced, but evidences show their common use in treating this dysfunction (specialy paroxetine). Dapoxetine and Tramadol are newly developed conventional drugs for treatment of this dysfunction. Dapoxetine is a SSRI but not licensed as antidepressant. It treats premature ejaculation by modulation of then expulsion reflex at a supraspinal level (Giuliano et al., 2007; Clement et al., 2007) and has been approved in Korea, Sweden, Portugal, Finland and Austria. Tremadol delays ejaculation by combining u-opioid receptor activation and reuptake inhibition of serotonin and noradrenaline (MAK, 2009). However, both have side effects like nausea, dizziness, vomiting and headache. List of conventional drugs for treatment of this dysfunction is shown in table 1.

Table 1. Conventional drugs for premature ejaculation treatment (Steggall, 2010).

Class and name of drug	Description	Mode of action	Side effects	Suggested dose
1. Trycyclic antidepressants	Chemical compounds consist of four rings of atoms and used as antidepressants for depressive disorders	These are serotonin-norepinephrine reuptake inhibitors (SNRIs). These block serotonin and norepinephrine transporters, resulting in elevation of synaptic concentrations of these neurotransmitters, consequently neurotransmission enhancement.	Nausea, anxiety, hypersensitivity, hypotension, Drowsiness, Perspiration, Erectile dysfunction, bleeding, decreased blood glucose and low sodium	
a. Clomipramine				25mg, daily in morning with breakfast
2. SSRIs	Selective serotonin reuptake inhibitors are class of chemical compounds used as antidepressants in curing depressive and anxiety disorders	SSRIs delay ejaculation by enhancing release of serotonin into the synapse, neurotransmission of serotonin and stronger activation of postsynaptic 5-HT receptors.	Sexual dysfunctions like erectile dysfunction and libido loss, tremor, nausea, dizziness, headache and fatigue	
a. Paroxetine				20 mg, daily in morning with breakfast or four hours before sexual activity
b. Sertraline				50 mg, daily in morning with breakfast
c. Fluoxetine				20mg, daily in morning with breakfast
d. Fluvoxamine				100mg, daily in morning with breakfast
e. Citalopram				20mg, daily in morning with breakfast
3. PDE5Is	Phosphodiesterase 5 inhibitors (PDE5Is) are group of drugs used in the treatment of sexual disorders like premature ejaculation and erectile dysfunction.	These drugs increase blood flow in penis by relaxing smooth muscles in the vessels.	Headache, skin flushing, dizziness, stuffy nose, muscle pain and heart burn	
a. Sildenafil citrate (Viagra)				50–100mg, one hour before sexual activity
b. Tadalafil				10–20mg, 30 minutes to two hours before sexual activity
c. Vardenafil				10–20mg, 15–20 minutes before sexual activity
4. Desensitizing agents	Desensitizing agents like SS Cream, lidocaine, prilocaine are local anaesthetics are used in	Local anaesthetics are used to delay ejaculation and desensitize the penis	Loss of sensitivity, Loss of tumescence,	

	treatment of premature ejaculation.	prior to coitus. These are the oldest drugs used for treatment of premature ejaculation and are available in gel, cream, aerosol formulations.	avoid in pregnancy	
a. Eutetic mixture of local anaesthetic				60 minutes before sexual activity
b. Premjact spray				10 minutes before sexual activity
c. Performa condoms				before sexual activity
5. Opiate	Opiates are a group of drugs, used for treating pain and produce a sense of wellbeing	Opiates like tramadol hydrochloride binds to both μ-opioid and gamma-aminobutyric acid (GABA) receptors and inhibits reuptake of norepinephrine and serotonin.	Mild dyspepsia, Mild somnolence	
a. Tramadol				25 mg, one to two hours before sexual activity

Herbal remedies for premature ejaculation treatment

According to literature, since ancient times various plants and their products are being used by man for curing many ailments (Khosa and Singh, 1972; Khan and Tariq, 1977). Plants contain several bioactive compounds having therapeutic uses and are used in synthesis of useful drugs (WHO, 1977). Use of herbs in treating various diseases is universal and is more affordable than much expensive modern drugs. There are various plants which are capable of curing sexual dysfunctions like premature ejaculation. Herbal medicines used in curing of premature ejaculation are mainly orally administered and mainly prepared by pounding, chewing and boiling. List of various plants which are used in premature ejaculation treatment are shown in table 2.

Table 2. Herbal remedies for premature ejaculation.

Plant name	**Common name**	**Family**	**Parts used**
Abutilon indicum	Indian Abutilon, Kanghi	Malvaceae	Leaves
Achyranthes aspera	Prickly chaff flower, Apamarg	Amaranthaceae	Root
Amaranthus spinosus	Spiny Amaranth, Chaulai	Amaranthaceae	Leaves
Azadirachta indica	Indian Lilac, Neem	Meliaceae	Young root
Ficus racemosa	Cluster Fig Tree, Gular	Moraceae	Fruits
Sida acuta	Wireweed, Bala	Malvaceae	Whole plant
Tribulus terrestris	Bindii, Chhoti Gokhru	Zygophyllaceae	Fruits, whole plant
Sphaeranthus indicus	Mundi, Gorkhmundi	Asteraceae	Seeds
Cannabis sativa	Marijuana, Bhang	Cannabaceae	Leaf
Linum usitatissimum	Flax, Alsi	Linaceae	Seeds
Tilia platyphyllos	Large Leaved lime, Linden	Malvaceae	Leaves
Lippia citriodora	Lemon verbena, Lemon beebrush	Verbenaceae	Leaves
Matricaria chamomilla	Chamomile, German chamomile	Asteraceae	Flowering tops
Valeriana officinalis	Valerian, Velandswurt	Valerianaceae	Whole plant
Humulus lupulus	Hops, Common hop	Cannabaceae	Female flowers
Eugenia caryophyllata	Clove, Clavos	Myrtaceae	flowers
Avena sativa	Oats, common oat	Poaceae	Seeds
Rosmarinus officinalis	Rosemary, romero	Lamiaceae	Leaves
Angelica sinensis	Dong Quai, female ginseng	Apiaceae	Roots
Withania somnifera	Ashwagandha, Indian ginseng	Solanaceae	Roots, leaves

Chlorophytum Borivilianum	Asparagus/ Safed Musli	Asparagaceae	Roots
Allium sativum	Garlic, Lasan	Amaryllidaceae	Cloves
Asphaltum punjabianum	Shilajit, Mineral Pitch	Pedaliaceae	Exudate
Moringa oleifera	Drumstick, Moringa	Moringaceae	Bark
Nelumbo nucifera	Indian lotus/ Lotus leaf	Nelumbonaceae	Leaves
Chlorophytum borivilianum	Safed Musli, Musli	Liliaceae	Roots
Orchis latifolia	Salab mishri, Salep Orchid	Orchidaceae	Dried tuberous roots
Acacia arabica	Babul, Indian Gum	Leguminoosae	Fresh pods
Trachyspermum ammi	Bishop's Weed, Ajwain	Apiaceae	Seeds
Elettaria cardomomum	Cardamom, Small Cardamom	Zingiberaceae	Seeds
Zingiber officinale	Ginger, Adrak	Zingiberaceae	Rhizome
Feronia limonida	Wood apple, Elephant Apple	Rutaceae	Leaves

Conclusion

Premature ejaculation (PE) is a common male disorder in which minimal penile stimulation causes ejaculation soon after sexual activity. This disorder decreases the couple's sexual satisfaction and results in a loss of intimacy. Effective treatments are available but due to shyness patients don't take action. Therefore, more attention and awareness are required so that men and their partners feel comfortable and are encouraged to take medical help to cure this dysfunction. Knowledge about physiology, prevalence of this disorder is also very essential to find a permanent cure. Understanding mode of action of various conventional drugs and herbal drugs will also help in treatment of this disorder.

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