A Review of Pathophysiology and Management Options for Delayed Ejaculation

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ABSTRACT

Introduction: Delayed ejaculation (DE) is a poorly defined disorder that entails the delay or absence of orgasm that results in personal distress. Numerous causes of DE exist, and management must be tailored to the specific etiology to maximize treatment success. Management strategies include psychological and sexual therapy, pharmacotherapy, and penile vibratory stimulation.

Aim: This article intends to review the pathophysiology and treatment options for DE discussed in the literature to date.

Methods: A review of the literature was performed to identify and evaluate the existing data on treatment success for the various forms of DE management.

Main Outcome Measures: Each treatment option was evaluated for method of administration, data supporting its success for DE, and potential risks or side effects.

Results: Different psychosexual therapy strategies have been described for DE but with limited data to describe efficacy. There is no medication for DE approved by the United States Food and Drug Administration. The quality of evidence supporting the off-label use of medications for DE is low. However, there are numerous medications reported in the literature suggested to treat the condition. Cabergoline and bupropion are the two most commonly used. In addition, penile vibratory stimulation has been described as an adjunct treatment option for DE.

Conclusion: There are different treatment options reported for DE, all with limited evidence supporting their efficacy. Identifying the etiology of the DE is important to appropriately target therapy. A multimodal approach combining psychosexual therapy with medications and/or penile vibratory stimulation will likely provide the best outcomes.

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Key Words: Delayed Ejaculation; Ejaculatory Dysfunction; Sexual Dysfunction; Sexual Health; Management; Treatment

INTRODUCTION

Delayed ejaculation (DE) is an often-underreported condition that has been associated with significant personal and relationship hardship, decreased intimacy, and dissatisfaction.[1–4] The diverse and often multifactorial etiology of the disorder makes it a challenge to properly evaluate. A thorough medical history, physical examination, and laboratory evaluation by a clinician is best complemented by a complete sexual history and psychological assessment from a sexual therapist. This collaborative model integrating the work of the clinician and sexual therapist will likely optimize successful treatment. In this review, we provide a brief overview of the epidemiology of DE and relevant physiology of ejaculation, followed by an algorithm for the evaluation and description of management options described in the literature to date.

Definition

A common definition used for DE is the persistent or recurrent delay, difficulty, or absence of orgasm after sufficient sexual stimulation that causes personal distress.[5] The emphasis in this definition is the personal impact on the patient and not on a specific time required to define the delay. An international sample of healthy volunteers had a median intravaginal ejaculation latency time of 5.4 minutes (range 0.55–44.1 minutes).[6] The mean of this intravaginal ejaculation latency time plus two

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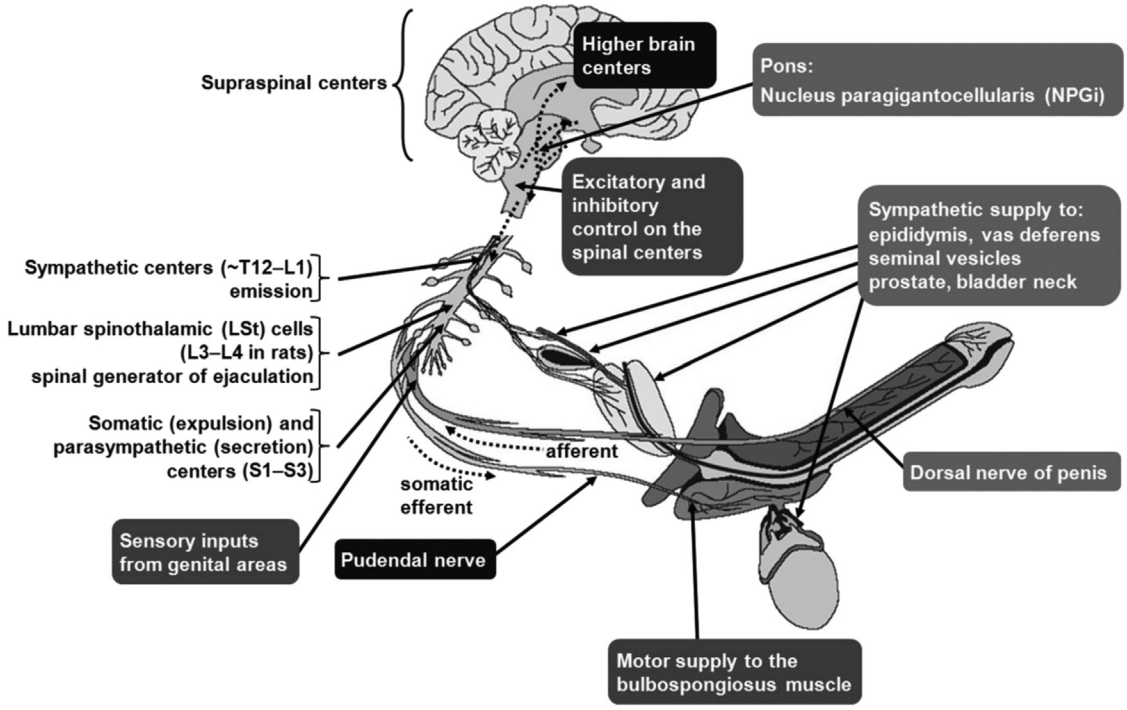

Figure 1. Neurophysiology of ejaculation. Reprinted with permission from Giuliano et al.[15]

standard deviations (approximately 25 minutes) also has been proposed to define DE.[7] Estimates of the incidence of DE range from 2% to 11% in various studies, which used different study populations and definitions for DE.[8–11] The definition of DE is complicated further by the American Psychiatric Association's *Diagnostic and Statistical Manual, 5th edition* criterion, which excludes cases that are caused by a non-sexual mental disorder, relationship distress, drug effect, or a medical condition.[12] When using this stricter criterion, most cases of DE that clinicians encounter and treat, such as patients taking antidepressant medications, would be excluded.

Physiology of Ejaculation

Achieving orgasm is largely orchestrated by the central nervous system, with various areas of the brain suspected to be connected to ejaculation.[13] Ejaculation can be divided into the emission and expulsion phases. Emission is coordinated by the hypogastric nerves (T12—L1) to deposit sperm from the ampulla of the vas, seminal vesicle fluid, and prostatic secretions into the urethra. Expulsion is under the direction of the pudendal nerve (S1—3), which innervates the bulbospongiosus and other pelvic floor muscles to rhythmically contract, sending out the ejaculate from the urethra.[14,15] Figure 1 depicts these complex mechanisms coordinating ejaculation.[15] Orgasm is thought to result from the release of pressure from the smooth muscle activity of sexual organs and release of neurotransmitters in the brain, creating a sense of satisfaction. Dopamine and serotonin are two key neurotransmitters associated with orgasm and ejaculation. Prolactin is suspected to be partly responsible for the refractory period after orgasm. Dopamine and prolactin are inversely related during this process, demonstrating an increase in dopamine with suppressed prolactin during orgasm and subsequent dopamine decline with concomitant rise in prolactin.[16,17]

CAUSES

Reaching orgasm involves a complex interplay of body and mind. An individual's ejaculation latency is determined by various factors, including genetics, neurophysiology, behaviors, psychosocial variables, and cultural influence.[18] Physical stimulation must be accompanied by cognitive arousal to maximize the sexual experience. As such, psychological conflict and performance anxiety can cause such emotional distress as to inhibit orgasm. Examples of this psychological conflict include fear of fathering a child, fear of harming one's self or the partner with sex, or shame stemming from religious beliefs.[7] Relationship conflict, poor communication of sexual preferences, and inappropriate use of fantasy can lead to low sexual desire and could contribute to DE.[19,20] Idiosyncratic masturbation refers to a style that cannot be replicated with a woman partner using her hand, mouth, or vagina and has been associated with DE during intercourse.[7,21]

In addition to the mind, there are other somatic perturbations that affect ejaculation latency and could lead to DE. Decreased orgasm intensity has been associated with advanced age and could be secondary to lower testosterone and atrophy of sexual organs.[22] DE and other ejaculatory dysfunctions can be encountered in up to half of patients with different neurologic and endocrine disorders, including multiple sclerosis and diabetes