## ORIGINAL RESEARCH—EJACULATORY FUNCTION

# Premature Ejaculation Is Associated with Glycemic Control in Type 1 Diabetes

Giuseppe Bellastella, MD, PhD,* Maria Ida Maiorino, MD,* Laura Olita, MD,*
Elisabetta Della Volpe, MD,* Dario Giugliano, MD, PhD,* and Katherine Esposito, MD, PhD†

*Department of Medical, Surgical, Neurological, Metabolic and Geriatric Sciences, Division of Endocrinology and Metabolic Diseases, Second University of Naples, Naples, Italy; †Department of Clinical and Experimental Medicine, Diabetes Unit, Second University of Naples, Naples, Italy

DOI: 10.1111/jsm.12755

**ABSTRACT**

***Introduction.*** Premature ejaculation (PE) is the most common male sexual dysfunction. Its prevalence in Type 1 diabetes is unknown.

***Aim.*** The aim of this study was to assess the prevalence of PE in Type 1 diabetes and the influence of glycemic control on ejaculatory function.

***Methods.*** One hundred Type 1 diabetic male patients (age < 40 years) and 51 age-matched nondiabetic control subjects were evaluated for PE. A subgroup of 30 diabetic patients (20 with PE and 10 without) were also evaluated for blood glucose variability.

***Main Outcome Measures.*** The presence of PE was assessed with the premature ejaculation diagnostic tool (PEDT) and the self-estimated intravaginal ejaculatory latency time (IELT). Glucose variability was evaluated by continuous glucose monitoring for a 7-day period with a DexCom G4 CGM system: the mean amplitude of glycemic excursions (MAGEs), low (LBGI) and high (HBGI) blood glucose indices, and the standard deviation of blood glucose (BGSD) were calculated.

***Results.*** PE prevalence did not differ significantly between the two groups: pathological values of the PEDT score (>8) and IELT score (<1 minute) were recorded in 24 out of 100 diabetic patients (24%) and in 12 out of 51 controls (23.5%). There were significant associations between hemoglobin A1c and the PEDT score ($r = 0.27$; $P = 0.006$) and IELT ($r = -0.3$; $P = 0.01$). In the subgroup assessed for glucose variability, the PEDT score was associated with LBGI ($r = 0.43$; $P = 0.01$), but not with BGSD ($r = 0.1$, $P = 0.6$), MAGE ($r = -0.1$; $P = 0.4$), or HBGI ($r = 0.1$; $P = 0.6$).

***Conclusions.*** Our results show a similar prevalence of PE in young male patients with Type 1 diabetes and in the age-matched control population; in diabetic patients with PE, a higher glycemic variability in the hypoglycemic domain is significantly associated with the PEDT score. **Bellastella G, Maiorino MI, Olita L, Della Volpe E, Giugliano D, and Esposito K. Premature ejaculation is associated with glycemic control in Type 1 diabetes. J Sex Med 2015;12:93–99.**

***Key Words.*** Premature Ejaculation; Type 1 Diabetes; Glucose Variability; Hypoglycemia

### Introduction

Premature ejaculation (PE) can be defined as a male sexual dysfunction characterized by ejaculation which always or nearly always occurs before or within about 1 minute of vaginal penetration, inability to delay ejaculation on all or nearly all vaginal penetrations, and negative personal consequences, such as distress, bother, frustration, or the avoidance of sexual intimacy [1,2].

This definition refers exclusively to lifelong (from the first sexual experiences) PE. A recent evidence-based unified definition of lifelong and acquired PE by the Second International Society

for Sexual Medicine Ad Hoc Committee for the definition of PE specifies that the lifelong form occurs before or within about 1 minute of vaginal penetration and the acquired form is characterized by a reduction in latency time, often to about 3 minutes or less [3]. PE is the most common male sexual dysfunction, with prevalence in the general population ranging from 19% to more than 30% [4–7]. Nevertheless, the real prevalence of the condition remains unclear because of a lack of a standardized definition until now and of the variability in perception of normal ejaculatory function between countries, patients, and partners. PE was long considered a psychological or learned condition, primarily interpersonally based; however, organic factors, including thyroid diseases, prostatitis, varicocele, drug consumption, a higher cortical representation of the pudendal nerve, impaired central serotoninergic neurotransmission, and glans penis hypersensitivity, can also be involved [8,9]. Moreover, a recent study [10] shows that married men with lifelong PE had significantly lower serum nitric oxide levels than 40 healthy, age-matched men. Neurobiological and genetic variations may also contribute to the pathogenesis of lifelong PE, which may be maintained and increased by psychological or situational factors [11,12].

Sexual dysfunctions are common in diabetic men [13,14], but data on PE are scanty. In a sample of 676 Type 2 diabetic patients (mean age 53 years), the overall prevalence of acquired PE was 40.2%, associated with the length of disease and poor diabetic control [15]. In the 713 Type 1 diabetic men of the DCCT/EDIC (Diabetes Control and Complications Trial/Epidemiology of Diabetes Interventions and Complications Research Group) cohort, most men seek help for ejaculatory dysfunction only after they have had erectile dysfunction (ED) [16]. To the best of our knowledge, the prevalence of PE in patients with Type 1 diabetes has never been assessed; this form of diabetes represents a suitable model for assessing the influence of glycemic status per se on ejaculatory function. Therefore, the aim of this study was to investigate the frequency of PE in young male Type 1 diabetic patients and to assess the influence of glycemic control on it.

#### Patients and Methods

One hundred young male patients (<40 years) affected by Type 1 diabetes were consecutively recruited (from September 1, 2013 to April 30, 2014) from those attending the diabetes unit of the university hospital. Patients were on treatment with multiple daily insulin injections or with continuous subcutaneous insulin infusion. Fifty-one, age- and weight-matched males served as nondiabetic controls and were recruited from young males attending our unit for the ANDROLIFE program, a yearly clinical program in Italy to provide young males free andrological consultation. To be included in the study, all participants must have had sexual activity with a partner within the previous 6 months.

After informed consent was obtained, all participants at the initial visit completed a medical history questionnaire, were asked about their sexual activity, with particular regard to the duration of ejaculation, and underwent a physical examination including anthropometric and blood pressure measurements, evaluation of facial and body hair, testicular volume, penis, prostate, gynecomastia, and muscle mass.

The presence of PE was assessed according to the European Association of Urology guidelines [8], with the premature ejaculation diagnostic tool (PEDT) [17], a five-item questionnaire assessing control, frequency, minimal stimulation, distress, and interpersonal difficulty. A score of 8 or less excludes PE. To improve diagnostic specificity, we combined PEDT with the self-estimated intravaginal ejaculatory latency time (IELT); an IELT of <1 minute confirms the PE diagnosis. We categorized acquired or lifelong PE from the clinical history through specific question. Participants also completed the International Index of Erectile Function-5: a score >21 excluded ED [18].

A subgroup of 30 diabetic patients (20 with PE and 10 without) underwent continuous 7-day glucose monitoring through the DexCom G4 CGM system (San Diego, CA, USA), comprising a transcutaneous sensor, a transmitter, and a receiver. We analyzed glucose variability by considering the standard deviation of blood glucose (BGSD) readings and by calculating the mean amplitude of glycemic excursions (MAGEs). The MAGE was calculated as the arithmetic mean of the differences between consecutive glycemic peaks and nadirs, but considering only changes in the glycemic values of more than 1 standard deviation (SD). The low (LBGI) and high (HBGI) blood glucose indices were also calculated. The LBGI reflects the frequency and extent of hypoglycemic episodes and is a weighted average of the number of hypoglycemic readings, with progressively increasing weights as blood glucose levels