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## LETTER TO THE EDITOR

Sexual Function

# The role of urethral pressure profile on treating premature ejaculation by tamsulosin

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Dear Editor,

I am Dr. Hui-Rong Chen, from the Department of Urology in Shanghai First People's Hospital at Shanghai Jiao Tong University, Shanghai, China. Premature ejaculation (PE) is a common sexual dysfunction, affecting approximately 20%–30% of sexually active men. According to intravaginal ejaculatory latency time (IELT) of 1 min, the incidence is approximately 1%–3%.<sup>1</sup> PE is significantly associated with many personal and negative consequences, such as distress, frustration, and avoidance of sexual intimacy due to the inability of successful delayed ejaculation.  $\alpha$ 1-adrenergic blockers were effective in delaying ejaculation in approximately 50%–67% of the cases.<sup>2,3</sup> Recently, abnormal ejaculation, an adverse infrequent side effect associated with the use of  $\alpha$ 1A-adrenergic blockers such as silodosin or tamsulosin, has drawn significant attention. Clinical studies suggested that this represents a relative anejaculation rather than a retrograde ejaculation.<sup>4,5</sup> We present here the study to investigate the role of urethral pressure profile (UPP) on treating PE by tamsulosin.

The effects of  $\alpha$ 1-adrenergic blockers (tamsulosin, silodosin, alfuzosin, and naftopidil) on noradrenaline-induced contractions were studied in rat isolated seminal vesicles, vas deferens, bladder trigone, and prostate. All  $\alpha$ 1-adrenergic blockers dose-dependently decreased the number of copulatory plugs and inhibited the phenylephrine-induced increase in intraurethral pressure.<sup>6</sup> *In vivo* study suggested that  $\alpha$ 1-adrenergic blockers (alfuzosin, naftopidil, prazosin, silodosin, and tamsulosin) inhibit contraction of both the posterior urethra and the vas deferens in male dogs, and they have higher tissue selectivity for the vas deferens than for the posterior urethra. The imbalance between intraurethral pressure in the prostatic urethra and intraluminal pressure in the vas deferens may contribute to abnormal ejaculation.<sup>7</sup> The intraluminal pressure in vas deferens could not be measured clinically with the present study equipment. UPP was used to determine the intraurethral pressure in the prostatic urethra, which may help to assess partly the imbalance between intraurethral pressure in the prostatic urethra and intraluminal pressure in the vas deferens.

Twenty-three patients suffering from PE and mild lower urinary tract symptoms (LUTS) were treated with tamsulosin 0.4 mg orally daily for 4 weeks. PE criteria were identified according to 2008 International

Society for Sexual Medicine definition. IELT was measured by the patient and his partner using a stop watch. Treatment outcomes were evaluated by IELT, the Clinical Global Impression Change (CGIC) groups: “better” or “much better” [B/MB], “slightly better” [SB], and “no change” [NC], and PE profiles. Ejaculation-related problems were investigated and parameters included were anejaculation, reduced semen volume, and discomfort on orgasm. UPP was performed using a standardized urodynamic technique with Laborie urodynamic unit (Canada).

In our study, 27% patients reported B/MB, and the mean average of IELT was prolonged (from 0.63 to 3.92 min), and about 30% of patients reported SB, and the mean average of IELT was prolonged (from 0.71 to 1.72 min). Ejaculation control, satisfaction with sexual intercourse, and ejaculation-related personal distress were all significantly improved in 30% patients. Recently, eight PE patients were treated with silodosin, which is a highly selective  $\alpha$ 1A-adrenergic blocker. Silodosin (4 mg) given 2 h before sexual intercourse, prolonged IELT significantly (from 3.4 to 10.1 min), and all patients reported “B” (MB) or SB for their own PE problem compared with pretreatment condition in the CGIC.<sup>8</sup> Several researchers have reported their experience with the selective  $\alpha$ 1-adrenergic blockers, alfuzosin and terazosin in the treatment of PE. However, those studies were limited by the use of subjective study end points of patient impression related to change and sexual satisfaction, and they did not evaluate actual ejaculatory latency.

There were four UPP parameters adopted (**Figure 1**), including maximal urethral closure pressure (MUCP), prostatic length (PL), functional profile length (FPL), and prostatic plateau area (PPA). Interestingly, UPP parameters (MUCP, PL and PPA) were significantly lower in group B/MB than in group NC or group SB, which indicated that tamsulosin was prone to be effective in treating PE patients with lower MUCP, lower PL, or lower PPA. For the first time, our present study indicated that treating PE by tamsulosin was more effective in 73% patients with low PPA ( $PPA \leq 48$  cm  $\text{cmH}_2\text{O}$ ) than in 25% patients with high PPA ( $PPA > 48$  cm  $\text{cmH}_2\text{O}$ ) ( $x = 4.960$ ,  $P = 0.039$ ). International Prostate Symptom Score (baseline and after treatment) showed no significant difference between low PPA group and high PPA group (**Table 1**). The results suggest that ejaculation threshold after the treatment by tamsulosin is higher in patients with low PPA than in patients with high PPA.

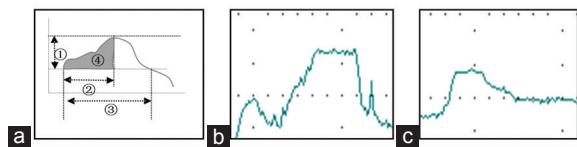
About 30% of patients received tamsulosin and experienced ejaculatory dysfunction.<sup>9</sup> Recent study was undertaken to determine the impact of tamsulosin (0.2 mg once daily for 12 weeks) on ejaculatory function. The overall incidence of ejaculatory dysfunction

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**Figure 1:** Urethral pressure profile (UPP) parameters. (a) ① maximal urethral closure pressure (MUCP); ② prostatic length (PL); ③ functional profile length (FPL), and ④ prostatic plateau area (PPA). (b) UPP parameters of a patient in group B/MB (MUCP: 19 cm H<sub>2</sub>O; PL: 3.75 cm; FPL: 4.25 cm; PPA: 71.25 cm cm H<sub>2</sub>O). (c) UPP parameters of a patient in group NC (MUCP: 12 cm H<sub>2</sub>O; PL: 1.25 cm; FPL: 2.75 cm; PPA: 15 cm cm H<sub>2</sub>O).

**Table 1: The role of PPA on treatment outcome**

	High PPA (n=8)	Low PPA (n=15)
PPA (cm cmH <sub>2</sub> O)	57.72±7.54	30.87±13.10*
Treatment effectiveness for PE (%)	25 (n=2)	73 (n=11)*
IPSS		
Baseline	4.36±1.14	4.12±1.30
After treatment	2.63±1.92	2.33±0.82

Values are presented as mean±SD. \*P<0.05, compared with the values in high PPA group. PPA: prostatic plateau area; IPSS: international prostate symptom score; PE: premature ejaculation; SD: standard deviation

was 13.4%, and the incidence of abnormal ejaculation was more frequent in patients with less LUTS, higher baseline Male Sexual Health Questionnaire totals, and smaller prostate volumes.<sup>10</sup> In our study, 13% patients treated by tamsulosin reported discomfort on orgasm and anejaculation. Since it was inconvenient for patients to assess the semen volumes after intravaginal ejaculation, the changes in semen volume resulting from the treatment could not be reported in this study. The patients were informed anejaculation or reduced semen volume as possible adverse events before treatment. We thought that the longer sexual intercourse time might compensate for those adverse effects.

## CONCLUSIONS

The present preliminary study suggests that  $\alpha$ 1A-adrenergic blocker tamsulosin can be used to treat patients suffering from PE, and tamsulosin is prone to be effective in patients with lower MUCPs or PPA. Limitations of this study may be related to small sample size.

This report will facilitate further studies to develop and evaluate the indications and safety of tamsulosin for PE.

## AUTHOR CONTRIBUTIONS

HRC, SJX, FJZ, XHW, QJ, QZ, BMH conceived of and participated in the study, performed the statistical analysis and drafted the manuscript. HRC, XHW, QJ conducted the UPP. SJX, JL participated in the coordination of the study. All authors read and approved the final manuscript.

## COMPETING INTERESTS

The authors declare no competing interests.

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