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Opinion

A New Set of External Devices for the Treatment of Erectile Dysfunction

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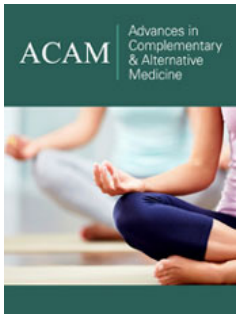

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Abstract

Device therapy has always been an attractive option for the treatment of erectile dysfunction. However, there are only a few devices available on the market and they need to be customized. The purpose of this letter is to introduce a new set of improved external devices, including erection rings, penile supports and external penile prostheses. These devices are easy to use and suitable for mass production.

Keywords: Erectile dysfunction; Penile support; Penile prosthesis

Introduction

Device therapy has been an attractive option for treating erectile dysfunction (ED) in recent decades, and many efforts have been made to design external devices [1]. In fact, closed metal rings have been widely used as erection rings. However, when the penis is erect, they are not easily worn. On the other hand, published clinical trials have shown that external penile support has a high overall satisfaction for both patients and partners [2]. However, it needs to be customized for each individual patient. In addition, the concept of external penile prosthesis (EPP) has received increasing attention in recent years [3], but so far, no practical devices have been found in the literature. The purpose of this letter is to introduce a new set of external devices with improved design [4], as shown below Figure 1.

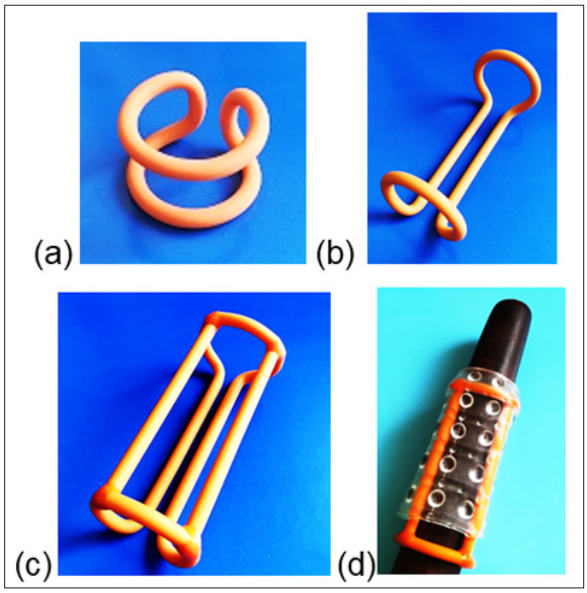

Figure 1: A new set of external devices.

(a) a titanium saddle ring;

(b) Titanium saddle penile support;

(c) a practical penile prosthesis;

(d) EPP covered by penis sleeve.

Figure 1a shows a titanium saddle ring (TSR) formed from a titanium shape memory alloy wire covered by a latex tube. Its dimensions are characterized by its inner diameter and height, expressed as "diameter x height". The typical TSR size is ø26mm x18mm. Due to the super elasticity of the titanium alloy wire, the TSR has a maximum clamping force of up to 1kg and a tensile inner diameter of up to 40mm. As an erection ring, the TSR is as good as a closed metal ring, but it is more convenient to use. Figure 1b shows a titanium saddle penile support (TSPS). In fact, it is a longer TSR. Usually, the penile support takes the form of a full support, that is, from the base of the penis to the corona. However, in order to achieve better overall satisfaction and eliminate the need for customization, the TSPS uses a short support method with a typical size of ø26mm x 65mm, which is sufficient for moderate ED patients to penetrate the vagina. However, TSPS is not suitable for patients with severe ED because it will fall off during sexual intercourse. In order to firmly hold the penis of a severe ED patient, two additional support rods need to be added, as shown in Figure 1c. In this way, it becomes an EPP.

These TSR devices are easy to mass produce. However, the biggest obstacle to the application of TSPS and EPP probably is the women's foreign body sensation. Fortunately, there is a simple way to overcome this obstacle, namely using one or two pieces of penis sleeve section to cover them, as shown in Figure 1d.

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