

Table 5. Effects of Topical Agents

Author Year; Country Score Research Design Total Sample Size	Methods	Results
<p>Kim et al. 1995 USA Prospective controlled trial Level 2 N=20</p>	<p>Population: 13 men with SCI, 7 non-SCI Age: range 19-73 yrs, Duration of erectile dysfunction: range 0.6-27 yrs. Treatment: Papaverine gel or placebo gel, dose range: 133-500mg. Outcome Measures: Safety and efficacy of topical papaverine gel.</p>	<p>For SCI patients (n=12)</p> <ol style="list-style-type: none"> 3 patients with papaverine gel had full erections, but full erections also occurred with placebo gel.
<p>Bodner et al. 1999 USA Post-test Level 4 N=15</p>	<p>Population: 15 men; Age range: 30-70 yrs, Injury level: 7 tetraplegia, 8 paraplegia. Treatment: Intraurethral alprostadil (125-1000µg); MUSE (medicated transurethral system for delivery of alprostadil to the male urethra). Outcome Measures: Efficacy of intraurethral prostaglandin E1.</p>	<ol style="list-style-type: none"> 12 achieved grade 1-3 erections, 3 achieved grade 4 erections. All could achieve grade 5 erections with intracavernosal injections therapy. The three that achieved grade 4 erections all tried MUSE at home and were dissatisfied.
<p>Kim & McVary 1995 USA Pre-post Level 4 N=10</p>	<p>Population: Men with SCI (n=9), 1 arterial insufficiency; Age: mean 33 yrs, range 19-50; Injury level: cervical (n=4), thoracic (n=5) Treatment: Topical prostaglandin E1 to penis, scrotum, and perineum. Outcome measures: Color flow Doppler Ultrasound for cavernous artery diameter and peak systolic flow velocity, vital signs: systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR), clinical erection, adverse events.</p>	<ol style="list-style-type: none"> Mean cavernous artery diameter increased from 0.09 to 0.11 cm. Mean peak systolic flow velocity increased from 15.4 to 22.8 cm/sec. Clinical erections were observed in 2 men. Vital signs were unaffected by PGE1. No adverse events.

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<p>Chancellor et al. 1994 USA Post-test Level 4 N=18</p>	<p>Population: 18 men with SCI, Age: range 19-65 yrs, Level of injury: C7-L3 (15 thoracic). Treatment: Minoxidil spray, papaverine injection, or vacuum constriction device (VCD). Outcome Measures: Erectile response.</p>	<ol style="list-style-type: none"> 1. Papaverine injections increased median rigidity 77% (range 30-100%). Rigidity was significantly less with minoxidil. 2. Vacuum constriction devices changed rigidity a median of 57% (range 30-80%). 3. No difference between vacuum constriction device and papaverine. 4. The patient's subjective rating scale was significantly lower for minoxidil than vacuum constriction device or papaverine. 5. Physicians' subjective ratings were significantly lower for minoxidil than other treatments.
<p>Beretta et al. 1993 Italy Post-test Level 4 N=15</p>	<p>Population: 15 men, age range: 20-38 yrs, Level: T2-L5. Treatment: Prostaglandin E1 and 2% Minoxidil solution. Outcome Measures: Erectile response.</p>	<ol style="list-style-type: none"> 1. 4 patients had complete responses, 5 had partial, 6 had no response. 2. 9 patients with complete/partial response continued to use minoxidil at home for 1 month. 3. 26.6% obtained an erectile response sufficient for vaginal penetration.
<p>Sønksen & Biering-Sørensen 1992 Denmark Post-test Level 4 N=17</p>	<p>Population: 17 men, age range: 19-51 yrs, level: C2-L4, 13 complete, 4 incomplete. Treatment: Transiderm-Nitro plaster (10mg/24hrs), which contains 50mg glyceryl trinitrate. Outcome Measures: Erectile response.</p>	<ol style="list-style-type: none"> 1. 5 patients had complete responses (full rigidity), 7 had partial responses (some rigidity and/or increase in penile circumference), and 5 had no response (no noticeable erection). 2. Erection duration (complete response): 20-45 min. 3. 5 (29%) had erections sufficient for vaginal penetration.