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#### Key Words

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## Original

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# Efficacy of Transurethral Delivery of Prostaglandin E<sub>1</sub> Carried by Gelucire<sup>®</sup> in Patients with Erectile Dysfunction

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#### ABSTRACT

The efficacy of transurethral delivery of prostaglandin E<sub>1</sub> (PGE<sub>1</sub>) carried by various formulations of Gelucire<sup>®</sup> in patients with erectile dysfunction was assessed by color Doppler sonography evaluation of hemodynamic changes in cavernous arterial circulation and evaluation of erectile angle and rigidity. A total of 68 impotent patients with and without definite vascular risk factors was recruited from a impotence clinic and classified according to the etiology of erectile dysfunction. Fifty of them entered a preliminary study for evaluation of hemodynamic changes of bilateral arteries and erectile function after intracavernous injection of PGE<sub>1</sub>. The other 18 patients were given a Gelucire<sup>®</sup>-based formulation containing PGE<sub>1</sub> transurethrally. After intracavernous injection of PGE<sub>1</sub>, patients with arteriogenic or psychogenic dysfunction showed a higher flow rate and RI (peak systolic velocity and resistance index) value than those with venous leakage syndrome. However, patients with arteriogenic impotence complicated with diabetes or hypertension had peak flow rates similar to those with venous leakage syndrome. The mean RI of patients with hypotension was similar to that of patients with arteriogenic impotence, whereas the RI of those with diabetes was significantly higher. Seven formulations based on Gelucire<sup>®</sup> were designed in this study for the transurethral administration of PGE<sub>1</sub>. One of 2 patients treated with formulation 1 showed no response, but the other showed an erectile angle of 45° with a rigidity grade of 1-2. One of 2 patients treated with formulation 2 showed no response, and the other showed only tumescence. Both patients who were administered formulation 3 demonstrated tumescence only. Formulation 4 produced an erectile angle of 45° with a rigidity grade of 2 in 2 of 2 patients. One of 4 patients given formulation 5 showed tumescence only, but the other 3 had erectile angles of either 45°, 80°, or 90° and rigidity grades of 1, 2, and 3-4, respectively. Formulation 6 produced only tumescence in 2 patients with different etiologies. Four of 4 patients who received formulation 7 showed erectile angles of 45°-90° and rigidity grades of 1-3. Transurethral delivery of PGE<sub>1</sub> in a Gelucire<sup>®</sup>-based formulation shows promise. By altering the ratio of different grades of Gelucire<sup>®</sup> to obtain a mixture with an appropriate HLB value and melting point, the transurethral delivery of PGE<sub>1</sub> can be optimized.

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