

Anaphylaxis associated with intracavernous penile injection of prostaglandin E1 in combination with papaverine and phentolamine

Anafilaxia associada à injeção intracavernosa peniana de prostaglandina E1 em combinação com papaverina e fentolamina

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ABSTRACT

Total radical prostatectomy for advanced prostate cancer may lead to sexual impotence, since it is associated with severe erectile dysfunction. A widely recommended treatment for this disabling condition is intracavernous penile injection of a mixture of prostaglandin E1, papaverine, and phentolamine. To our knowledge, we present the first case of anaphylaxis associated with intracavernous penile injection of prostaglandin E1 in combination with papaverine and phentolamine.

Keywords: Anaphylaxis, papaverine, phentolamine, prostaglandin E1, adverse effects, treatment with combination drugs.

RESUMO

A prostatectomia radical total para câncer de próstata avançado pode levar à impotência sexual, associada a uma disfunção erétil grave. Um tratamento amplamente recomendado para esta condição incapacitante é a injeção intracavernosa no pênis de uma mistura de prostaglandina E1, papaverina e fentolamina. Até onde sabemos, estamos apresentando o primeiro caso de anafilaxia associada à injeção intracavernosa peniana de prostaglandina E1 em combinação com papaverina e fentolamina.

Descritores: Anafilaxia, papaverina, fentolamina, prostaglandina E1, efeitos adversos, tratamento com medicamentos combinados.

Total radical prostatectomy for advanced prostate cancer may lead to sexual impotence, associated with a severe erectile dysfunction. A widely recommended treatment for this disabling condition is the penis intracavernous injection of a mixture of prostaglandin E1, papaverine, and phentolamine. This combination results in a significantly increased degree of erection.^{1,2} We report the case of a patient with recurrent episodes of severe anaphylaxis following this treatment, used prior to intercourse.

A 62-year-old White man underwent radical prostatectomy for advanced prostate cancer 9 years

ago. Since then, he has been managing sexual impotence, with severe erectile dysfunction, by administering a penis intracavernous injection of a mixture containing prostaglandin E1, papaverine, and phentolamine prior to intercourse. Over the past 3 months, he experienced 3 anaphylactic episodes minutes after intercourse, in all of which the usual multidrug intracavernous injection had been administered. In all 3 events, he experienced general flushing, extensive itching, paresthesia, dyspnea, and dizziness with hypotension (measured blood pressure 70x40 mm Hg). There was no laryngeal edema,

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urticaria, or angioedema. The symptoms subsided about 15 minutes after taking fexofenadine 180 mg orally. The injection mixture contains prostaglandin E1 20 µg/mL, papaverine 12 mg/mL, and phentolamine 3.3 mg/mL. Allergy skin testing with the injection mixture, using positive and negative controls, showed positive reactions to the prick (3 mm wheal) and intradermal (12 mm wheal) tests (Figure 1). A persistent delayed positive reaction at the intradermal site was documented 24 hours later (Figure 2). Blood cell counts, platelets, liver and renal function tests, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), complements (C3, C4, CH50-100), serum immunoglobulins IgG, IgA, IgM, and IgE (66.60 IU/mL), serum tryptase (5.98 ng/mL), and 24-hour urinary 5-hydroxyindoleacetic acid (5-HIAA) were all normal.

The patient clearly presented 3 severe episodes of anaphylaxis following the administration of the multidrug injection into the cavernous region of the



Figure 1

Positive immediate allergy skin tests with the patient's injection mixture

H – Histamine positive control

d – Diluent negative control

I P – Skin prick test positive to the injection mixture

I ID – Intradermal skin test positive to the injection mixture



Figure 2

Delayed 24-hour positive allergy skin test with the patient's injection mixture

penis. Any of the substances in the mixture could be the trigger, although prostaglandin E1 and papaverine are the most likely triggers. An IgE-mediated reaction is a possibility. This mixture has been shown to cause anaphylactic histamine release from rat mast cells.^{3,4} We have recommended that the patient should carry a 0.3-mg epinephrine auto-injector and further discuss with the urologist the possibility of using a penile prosthetic device prior to intercourse.

To our knowledge we are presenting the first case of anaphylaxis associated with penis intracavernous injection of prostaglandin E1 in combination with papaverine and phentolamine.

References

1. Chandeck Montesa K, Chen Jiménez J, Tamayo JC, Rodríguez Antolín A, Álvarez González E. Prospective study of the effectiveness and side effects of intracavernous prostaglandin E1 versus papaverine or papaverine phentolamine in the diagnosis and treatment of erection dysfunction. Review of the literature. *Actas Urol Esp.* 1992;16(3):208-16.

2. Floth A, Schramek P. Intracavernous injection of prostaglandin E1 in combination with papaverine: enhanced effectiveness in comparison with papaverine plus phentolamine and prostaglandin E1 alone. *J Urol.* 1991;145(1):56-9.
3. Gushchin IS. Effect of prostaglandin E1 and papaverine on anaphylactic histamine liberation from mast cells. *Patol Fiziol Eksp Ter.* 1977;1:32-5.
4. Gushchin IS, Fredkhol'm B, Uvnas B. Effect of papaverine and prostaglandin E1 on preparation/48/80-induced histamine liberation from rat mast cells. *Patol Fiziol Eksp Ter.* 1975;6:3-7.

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