



PIC QUESTION OF THE WEEK: 11/24/08

Q: What is Peyronie's disease and can it be drug-related?

A: Peyronie's disease (PD) is a rare inflammatory syndrome associated with pain, curvature, and/or induration of the penis. It occurs when fibrotic plaques accumulate around the corpus cavernosum, resulting in bending and pain on erection. The plaque may subsequently become calcified and produce ossification. PD is often associated with Dupuytren's contracture (fibrosis of palmar fascia resulting in deformity of a finger). PD is diagnosed by palpation of the plaques. This disorder is more common in the elderly, but has been described in men as early as thirty years of age. Although documentation of symptoms similar to those of PD can be dated back to the 13th century, little is known of its cause and frequency. Suggested etiologies include infection, injury, autoimmune disease, and hyperplasia of fibrous tissue. Because of the rarity of the condition and the inconsistency of reported data, its mechanism and optimal treatment remain unidentified. A recent animal study identified alterations in preformed signaling pathways, thus suggesting the potential role of hereditary factors in the development of PD. A possible up-regulation in hypoxia-inducible factor 1 (HIF-1) was identified in mice who had an accumulation of thickening fibrous plaque resembling PD. The prevalence rate of PD is suggested to range from 1-9%, but may be higher due to the lack of personal reporting. Concurrent diabetes, drug use, and sexual dysfunction are quite prevalent in patients with this disease. PD has been linked to several medications including methotrexate, phenytoin, colchicine, and most frequently, beta blockers. Metoprolol is a rare cause of PD, occurring in less than 1 in 100,000 patients. Other beta-blockers associated with this reaction include propranolol, timolol (one case due to ophthalmic drops), and labetalol. The mechanism responsible for these reactions is unknown. Several surgical options are available to treat PD. Physicians often delay surgery for approximately one year after symptoms develop because approximately 13% of cases resolve spontaneously. Drug therapy includes the use of oral agents such as tamoxifen, colchicine, and vitamin E. Intra-cavernous injection of verapamil, acetylcarnitine, and interferon may also be beneficial. The efficacy of these drugs has yet to be established. Curative treatment is generally dependent on surgical measures, including tissue grafts and prosthetics. Studies are now underway to determine the exact etiology of PD with the hope its cause can be used to guide future therapy.

References:

- Sommer F, Schwarzer U, Wassmer G, et al. Epidemiology of Peyronie's disease. *Int J Impot Res* 2002; 14: 379-83.
- Lucattelli M, Lunghi B, Fineschi S, et al. A new mouse model of Peyronie's disease: an increased expression of hypoxia-inducible factor-1 target genes during development of penile changes. *Int J Biochem Cell Bio* 2008; 40: 2638-48.
- Peyronie's disease www.urologyhealth.org, (Accessed October 29, 2008).

Photo by: Name: Annelies_43: used under Creative Commons License; <http://www.flickr.com/photos/acejr371/2657222444/> (Accessed November 3, 2008)

Jennifer E Heasley and Renee T Phelos, Pharm.D. Candidates

The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).