

# Evidence that migraine headaches in women may be related to a common defect in the sympathetic nervous system as evidenced by marked improvement following treatment with sympathomimetic amines

**J.H. Check, R. Cohen, D. Check**

*The University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School at Camden, Cooper Hospital/University Medical Center, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ (USA)*

## Summary

**Purpose:** To describe a novel therapy for women with intractable migraine headaches. **Methods:** Dextroamphetamine sulfate was prescribed to a 33-year-old woman with intractable migraine headaches resistant to standard therapy. Her only abnormality noted was unexplained weight gain. She failed a water load test. **Results:** The headaches were 100% relieved by dextroamphetamine sulfate (Span-sule - 45 mg/day). **Conclusions:** Intractable migraine headaches can be added to the list of various pain syndromes related to a disorder of the sympathetic nervous system resistant to standard therapy but showing dramatic improvement with treatment with sympathomimetic amines.

**Key words:** Sympathetic nervous system; Sympathomimetic amines; Migraine headaches.

## Introduction

A disorder of the sympathetic nervous system leading to increased vascular permeability is a cause of various pain syndromes in women [1]. Treatment with sympathomimetic amines, e.g., dextroamphetamine sulfate, has resulted in dramatic improvement in situations of chronic intractable pain in women including interstitial cystitis [2], chronic pelvic pain [3], esophageal pain [4], gastroparesis [5], and severe joint pain in a woman with rheumatoid arthritis [6].

The case of woman with marked prolonged improvement in intractable migraine headaches following therapy with sympathomimetic amine therapy is presented.

## Case Report

A 33-year-old woman started to get migraine headaches that she described as crippling. She experienced diplopia when the pain occurred, and if it occurred while driving she had to close one eye in order to focus on the road.

The headaches began at the same time that this previously very slender woman started to gain weight despite dieting; she developed nocturia seven to ten times per night.

She consulted an acupressure specialist, a dentist and an ophthalmologist but none of them found an etiology nor rendered any therapy that proved effective. She consulted a neurologist who admitted her to a major teaching hospital for one week but found no etiologic factors.

The neurologist prescribed various pharmacologic agents including beta-blockers, e.g., 160 mg propranolol daily and 400 mg topiramale twice daily. However, these agents did not improve the severe constant intractable headaches.

The patient was taking 3600 mg ibuprofen per day and still needed supplements with oxycodone and acetaminophen and hydrocodone bitartrate and acetaminophen but the pain only mildly improved.

The woman consulted our reproductive endocrine practice hoping that the intractable headaches could be associated with a hormonal imbalance, especially the hormone estrogen. Her symptoms of weight gain and nocturia strongly suggested a diagnosis of idiopathic orthostatic cyclic edema as a possible etiology [7-9]. Indeed this was confirmed by demonstrating a water load test with an excretion of 80% of the ingested load in four hours supine, but only 45% standing [7-9].

Within three days of taking the sympathomimetic amine dextroamphetamine sulfate (15 mg Spansule) three times per day, her headaches were 100% relieved. She then stopped all of her pain medications. Complete relief has occurred for four years.

The geographic state in which the woman resided restricted the use of dextroamphetamine sulfate to only those patients approved for use for an attention deficit disorder, hyperkinetic behavior and narcolepsy. Thus the treating physician was precluded from using this off-label medication in that state. There were no withdrawal symptoms from stopping the medication. However within a week her headache returned with 100% of its previous intensity.

The headache persisted for two months and she was back on her high dosage of ibuprofen and other analgesics with hardly any relief. She actually contemplated suicide if no relief could be given.

She went to another state and was prescribed the dextroamphetamine sulfate again. She gained 100% relief within three days and the relief has persisted for two months.

## Discussion

Severe headaches can be added to the list of obscure intractable pain syndromes in women that respond quickly, dramatically, and efficiently to sympathomimetic amine therapy.

This case truly proved Koch's postulates [10]. It is not clear if the improvement is related to a decrease in edema and that the cerebral edema was the cause of pain, or if is there a direct effect on the sympathetic nervous system.

As a consequence of the treatment the patient also lost 20 pounds.

## References

- [1] Check J.H., Katsoff D., Kaplan H., Liss J., Boimel P.: "A disorder of sympathomimetic amines leading to increased vascular permeability may be the etiologic factor in various treatment refractory health problems in women". *Med. Hypothesis*, 2008, 70, 671.
- [2] Check J.H., Katsoff B., Citerone T., Bonnes E.: "A novel highly effective treatment of interstitial cystitis causing chronic pelvic pain of bladder origin: case reports". *Clin. Exp. Obstet. Gynecol.*, 2005, 32, 247.
- [3] Check J.H., Amadi C., Kaplan H., Katsoff D.: "The treatment of idiopathic edema, a cause of chronic pelvic pain in women: effectively controlled chronic refractory urticaria – case reports". *Clin. Exp. Obstet. Gynecol.*, 2006, 33, 183.
- [4] Leskowitz S.C., Shanis B.S., Check J.H.: "Resolution of atypical chest pain during treatment for idiopathic orthostatic edema". *Am. J. Gastroenterol.*, 1990, 85, 621.
- [5] Boimel P., Check J.H., Katsoff D.: "Sympathomimetic amine therapy may improve refractory gastroparesis similar to its effect on chronic pelvic pain: case study". *Clin. Exp. Obstet. Gynecol.*, 2007, 34, 185.
- [6] Boimel P., Check J.H.: "Marked improvement of intractable arthritic pain in a woman with rheumatoid arthritis with sympathomimetic amine treatment despite previous failure with standard therapy and possible implications for last trimester unexplained fetal demise". *Clin. Exp. Obstet. Gynecol.*, 2007, 34, 185.
- [7] Thorn G.W.: "Approach to the patient with idiopathic edema or periodic swelling". *JAMA*, 1968, 206, 333.
- [8] Streeten D.H.P.: "Idiopathic edema: pathogenesis, clinical features and treatment". *Metabolism*, 1978, 27, 353.
- [9] Check J.H., Shanis B.S., Shapse D., Adelson H.G.: "A randomized comparison of the effect of two diuretics, a converting enzyme inhibitor, and a sympathomimetic amine on weight loss in diet-refractory patients". *Endo Pract.*, 1995, 1, 323.
- [10] Koch R.: "Über den augenblicklichen stand der bakteriologischen choleradiagnose (in German)". *Zeitschrift für Hygiene und Infektionskrankheiten*, 1893, 14, 319.

Address reprint requests to:  
J.H. CHECK, M.D., Ph.D.  
7447 Old York Road  
Melrose Park, PA 19027 (USA)  
e-mail: laurie@ccivf.com