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Case Reports

Failed surgical therapy for chronic back pain and sciatica may be due to hypofunction of the sympathetic nervous system

J.H. Check[1,2], A. Whetstone[3]

[1]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
[2]Cooper Medical School of Rowan University, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology & Infertility, Camden, NJ
[3]The University of Medicine and Dentistry of New Jersey, School of Osetopathic Medicine, Camden, NJ (USA)

Summary

Purpose: To describe a distinctive pharmacological treatment for chronic pelvic pain and sciatica after spinal surgery with a laminectomy and spinal fusion failed to provide relief. *Materials and Methods:* Dextroamphetamine suflate was prescribed to a woman with a history of chronic back pain which was attributed to a ruptured disc. The pain was still unbearable after surgery. *Results:* After adjusting dosage, within three months of the correct dose, 25 mg twice a day, relief was provided and has persisted for ten months. *Conclusions:* Chronic pelvic pain and sciatica both may be symptoms of hypofunction of the sympathetic nervous system. In addition, with other pain symptoms, this can be effectively treated with sympathomimetic amines.

Key words: Backache; Sciatica; Sympathomimetic amines; Sympathetic hypofunction; Discectomy.

Introduction

Hypofunction of the sympathetic nervous system has been found to be an etiologic factor in a wide variety of chronic treatment refractory pathologic disorders [1]. Many of these disorders involve pain mainly related to failure of the sympathetic nervous system to inhibit cellular permeability allowing the absorption of caustic chemicals and toxins into tissues leading to pain and inflammation [1].

The sympathetic nervous system is also responsible for diminishing capillary permeability when a person stands to prevent leakage from the intravascular to the extravascular spaces directly related to the increase in hydrostatic pressure leading to edema [2]. The edema itself may contribute to pain besides the cellular permeability defect. Thus, the condition has been termed the sympathetic neural hyperalgesia edema syndrome [3, 4].

The interesting fact about this syndrome is how such a wide variety of symptoms in various parts of the body respond so quickly and effectively to one single agent – the sympathomimetic amine dextroamphetamine sulfate [1].

Pelvic pain is one of the chronic disorders that respond so well to dextroamphetamine sulfate when surgery fails [5, 6]. The first case described with severe pelvic pain who responded to dextroamphetamine sulfate was published in 2007 [7]. Eventually. the woman decided to just tolerate the pain and stopped the sympathomimetic amines because the state she lived in (New Jersey) did not allow off-label use of class II drugs and she found it inconvenient to travel to the state where it could be obtained (Pennsylvania). However, this 44-year-old woman developed severe, excruciating lower backache with pain radiating to her hips and legs after shoveling snow and was diagnosed by radiographic procedures and her orthopedist as having three herniated disks at L4, L5, and S1. Analgesics and anti-inflammatory drugs failed to relieve her pain and surgery was suggested [7]. In lieu of surgery, she returned for treatment with dextroamphetamine sulfate. She had marked improvement of the pain after two doses of dextroamphetamine sulfate and within a week the pain had completely dissipated [7].

The case presented here is another example of severe backache with sciatica that responded quite well to dextroamphetamine sulfate, but in this case in a woman who failed to have relief from back surgery.

Case Report

A 53-year-old patient came to us with a history of pelvic pain and sciatica of eight years duration. She also complained of fluid retention and edema, fibromyalgia, nocturia, and attention

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deficit hyperactivity disorder (ADHD). Additionally, she had a history of interstitial cystitis, depression, and multiple other complaints. Due to all of the ailments, specifically the chronic pain and sciatica, she was out of work upon arrival to the present office in July, 2010. She described her pain as right posterolateral thigh and calf pain that was so intense she wanted to cut her leg off. Her nocturia occurred nightly about two to three times which interrupted her sleep and caused her to be exhausted the next day.

One year prior to her initial visit, she had spinal surgery with a laminectomy and spinal fusion due to a ruptured disc which was discovered upon workup for her chronic pain and sciatica. After the surgery, she reported mild relief; however, her pain returned. She has tried ibuprofen, acetaminophen, pregabalin, ultram, and botox, all of which have provided minimal relief of her constant pain.

When she first came to the office in July of 2010, she was started on 15 mg of dextroamphetamine suflate extended release once daily. She also completed the water load test [1, 2] previously where she failed the erect portion. The medication provided some relief, especially decreasing her constipation and providing improvement of her ADHD. Her sciatica was also improved. However, after 30 days, this dose was not eliminating her pain. Her dose was therefore increased to 25 mg once a day. Further evaluation a month later revealed more stability of her ADHD. Also, her pain was better in the morning but worse with movement by six o'clock at night, especially in her right lower buttocks and leg. Again her dose was adjusted to 20 mg in the morning and at noon. A month later she stated that she did not have as much pain; however by six o'clock at night she was still constantly in pain. Additionally, she still showed signs of edema. She did not experience any side effects with the current dosage and therefore, her dose was again increased to 15 mg three times a day at 6:30 in the morning, 8:30 in the morning and 3:00 in the afternoon, with a total of 45 mg daily.

Re-evaluation a month later revealed her ability to concentrate and focus had significantly improved. Additionally, her pain had drastically decreased to average a five out of ten from a ten out of ten. Although her pain has dramatically decreased, she still was not pain free and she still experienced bloating. Consequently, spironolactone 100 mg was added to be taken when she began to feel bloated while keeping her dextroamphetamine sulfate the same. Upon evaluation a month later in December 2010, she still was not at a comfortable pain level. Consequently, her dosage was increased again to 25mg twice a day. In January 2011, she expressed a tremendous decrease in pain. Furthermore, she was back to work four times a week which she was never able to do. Additionally, her ADHD has markedly improved and she is now able to focus better and retain more information. She states, however, that she occasionally gets breakthrough pain and she still complains of bloating.

One month later, she still complained of this breakthrough pain about one week a month. The authors thus added 15 mg dextroamphetamine sulfate to her 25 mg twice a day to be used as needed for this week of excessive pain. Three months later, she stated that her pain had tremendously improved. After adjusting the dosage of dextroamphetamine sulfate, she has been provided relief from her chronic pelvic pain and sciatica. Additionally, she is able to work as a nurse on her feet again, four days a week. Her pain went from a constant level of ten out of ten to a two or three. Additionally, she is able to play tennis and do yard work. Through the use of this sympathomimetic amine and without the use of narcotics, the patient was able to get her life back and live relatively pain-free for the first time in years.

Discussion

In the first case described of relief of sciatica from sympathomimetic amine therapy the onset of symptoms were so acute the possibility existed that there was spontaneous improvement rather than from therapy [7]. The present case was so chronic and failed to gain relief even from back surgery indicating little question that the improvement in the backache and sciatica of the woman described was related to the sympathomimetic amine therapy.

The present case also had some of the other conditions associated with this defect: fibromyalgia, chronic fatigue, constipation, weight gain and edema, and bloating [8-12]. All of these symptoms improved in addition to the backache with treatment with dextroamphetamine sulfate.

Similar to pelvic pain, sympathomimetic amine therapy should be given consideration as first line therapy for chronic backache with sciatica.

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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