

# The increased cellular permeability syndrome as a cause of traumatic stuttering

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## Summary

**Purpose:** To determine if dextroamphetamine sulfate could help post-concussion symptoms, not only of severe headaches but severe stuttering as an additional complication. **Materials and Methods:** Dextroamphetamine sulfate (part of amphetamine salts) 15 mg extended release capsules was given to a 15-year-old with severe migraine headaches, jaw pain allegedly from temporomandibular joint (TMJ) syndrome, and severe stuttering. **Results:** The jaw pain and stuttering completely disappeared during the first few days of treatment and the migraines were markedly improved. **Conclusion:** Post-concussion stuttering can be added to the long list of pathological entities that comprise the increased cellular permeability syndrome, as evidenced by impressive response to sympathomimetic amine therapy.

**Key words:** Increased cellular permeability syndrome; Stuttering; Dextroamphetamine sulfate; Concussion; Temporomandibular joint syndrome

## Introduction

Headaches are a common problem for which women seek help from their gynecologist. They can occur premenstrually, as part of the premenstrual syndrome, a complication of oral contraceptives, pregnancy, or pre-eclampsia.

Sympathomimetic amines have been found to be a very effective therapy for headaches even when they have been refractory to conventional therapy [1-6]. A recent editorial emphasized that sympathomimetic amines are a safe highly effective therapy for several female chronic disorders that do not respond well to conventional therapy [7]. Sympathomimetic amines are the most effective therapy with the least side effects for pelvic pain [8,9]. Thus, the majority of the literature on the efficacy of this therapy has been in the gynecologic literature. When faced with a case with interstitial cystitis and dyspareunia, but also severe ocular migraines, the gynecologist should advise the patient that not only will the pelvic symptoms disappear, but so may the ocular migraines [10]. Thus familiarity with the treatment for all types of headaches in women, even those not seemingly related to hormonal issues or other gynecologic issues, e.g., constant daily headaches occurring most of the day, present for 22 years allegedly related to temporomandibular joint (TMJ) syndrome can lead to abrogation of the headaches by the gynecologist prescribing dextroamphetamine sulfate rather than a variety of neurologists and dentists who would seem to be the proper doctor to

treat this problem [6].

One young woman who was treated for pelvic pain especially for dysmenorrhea, who by talking to other patients and reading the literature on the syndrome that has been called the increased cellular permeability syndrome, asked if we would be willing to treat her boyfriend. He never had any headaches before but now had daily headaches occurring 70% of each day refractory to all therapies offered by neurologists. These headaches started after his seventh concussion playing college ice hockey [11]. They were almost 100% abrogated by a low dosage of dextroamphetamine sulfate.

One of our previous nurse's, familiar with this practice not only treating migraines, but familiar with the case of severe migraine headaches from concussions that responded extremely well following dextroamphetamine sulfate therapy despite failing to all other treatments, requested that we try amphetamine treatment for severe migraines in her daughter who suffered a severe concussion following a tragic school bus accident. Not only did the treatment markedly help the migraine headaches, but interestingly, corrected a severe stuttering problem that occurred following the accident.

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## Case Report

A 15-year-old female was in a serious school bus accident in which she suffered a severe concussion. Her head was hit on both the left and right sides. As a sequelae she had severe headaches, jaw pain, leg numbness, tendinitis in both wrists, tendinitis in her hip, and bulging discs in her lumbar and cervical spine. Other symptoms included light sensitivity and a convergence disorder of her eyes. She also could not mentally focus, so for six weeks she had been home schooled. This young woman never in her life had a stuttering problem. However, immediately following the accident, she developed a severe stuttering problem where she stuttered with each word. She had shown no progress six weeks later despite treatment by a speech pathologist. She also complained of extreme fatigue.

She was started on dextroamphetamine sulfate 15 mg extended release capsules in the form of amphetamine salts. With just the 15 mg extended release dosage, there was improvement of the migraine headaches from severe to mild. The jaw pain (allegedly from TMJ) completely disappeared. Interestingly, the stuttering, which was severe, completely disappeared within a few days and remained gone for the entire month. The fatigue had not improved as yet. Based on her marked improvement in her symptoms, the young lady called another young lady who also had a severe concussion from the accident, who similarly had severe headaches, and very interestingly, also severe stuttering. This other young lady contacted her neurologist and advised him of the benefit of amphetamine salts for her friend. The neurologist thus prescribed 15 mg amphetamine salts for his patient, and not only did the headaches markedly improve, but her severe stuttering also was completely abrogated.

## Discussion

This is the first reported cause of abrogating severe stuttering as a complication of concussion by the use of dextroamphetamine sulfate. The fact that two females, who were not showing any signs of spontaneous improvement after a few months, quickly and completely stopped stuttering after treatment with amphetamine salts, strongly suggests that the drug was responsible for the improvement not spontaneous remission.

Based on a vast experience with headaches of all different types treated with dextroamphetamine sulfate, we are confident that the 30 mg extended release dosage will further improve the headaches [12]. Similarly based on our experience with chronic fatigue syndrome, it is highly likely that the chronic fatigue will improve with the increased dosage of amphetamines [13-15].

The gynecologist is frequently the family physician for women. Obviously, in the case of a concussion, the gynecologist would refer the patient to a neurologist to rule out serious complications that could require surgery. However, as demonstrated by these two young ladies with two different neurologists, most physicians outside of the field of obstetrics and gynecology are not aware of the benefits of amphetamine therapy for not only headaches, but a variety of other neurological disorders.

Thus, if the consulting neurologist or headache specialist has not provided any relief of headache suffering with standard therapy, before more invasive tests or expensive therapy (e.g., botox injections) are considered, the gynecologist should offer amphetamine therapy.

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