

# Dextroamphetamine sulfate provided quick relief of severe post-partum depression that was recalcitrant to standard antidepressants and psychotherapy

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## Summary

*Purpose:* To determine if dextroamphetamine sulfate could improve symptoms of post-partum depression. *Materials and Methods:* A woman with severe post-partum depression that was resistant to standard antidepressant therapy and psychotherapy was treated with dextroamphetamine sulfate extended release capsules 15 mg/day. *Results:* A quick and complete abrogation of the depression ensued along with improvement of migraine headaches, insomnia, and chronic fatigue. *Conclusions:* Dextroamphetamine sulfate should be considered as a treatment modality for post-partum depression.

*Key words:* Dextroamphetamine sulfate; Post-partum depression; Antidepressants; Chronic fatigue; Psychotherapy.

## Introduction

Approximately 20% of the adult female population (twice as high as males) will experience an episode of a major depressive disorder at some point in their lives [1, 2]. Of the various types of mood disorders, “unipolar” major depression without lifetime mania or hypomania is the most common [3].

Structural and functional abnormalities of various areas of the brain, e.g., the prefrontal cortex, and other cortical regions, e.g., the anterior cingulate gyrus, and other areas of the limbic system may be involved in the etiology of major depressive disorder [4]. The limbic system may also be involved [4]. The defects in these areas may involve aberrations in the selective neurotransmitter system including serotonin, norepinephrine, and dopamine [5].

A possible role of the hypothalamic-pituitary adrenal axis with glucocorticoid secretion may be involved in major unipolar depression which could partially explain why life stress and lack of social support could increase the risk of post-partum depression [5, 6]. A previous history of depression in the woman with post-partum depression or a family history of post-partum depression can also increase the likelihood of post-partum depression [6].

When faced with a case of post-partum depression, the obstetrician will generally refer the woman to a reproductive endocrinologist or to a psychiatrist. The two main areas

where the reproductive endocrinologist may intervene is the possibility of estrogen deficiency or hypothyroidism during pregnancy. Because high levels of sex steroids suppress LH and FSH, there may be a delay in restoring the hypothalamic pituitary ovarian axis. This may be compounded by persistently high serum prolactin levels, especially with continued stimulation by high endogenous serum prolactin levels. There are data suggesting that post-partum estrogen supplementation may improve or completely abrogate unipolar depression [7, 8]. Some suggest that the combination of estrogen followed by progesterone supplementation may be more effective than estrogen alone [9].

There is good evidence that hypothyroidism may be associated with post-partum depression [10-16]. Pregnant women seem to be especially prone to transient hyperthyroidism with lymphocytic thyroiditis in the late third trimester which goes unnoticed because pregnancy favors a high metabolic state [17]. However, once the stored thyroid hormone released because of the inflammation is completely utilized, transient hyperthyroidism is usually followed with transient hypothyroidism because the injured gland temporarily cannot manufacture thyroid hormone [18]. The transient hypothyroidism can last two to three months [18]. A previous case was reported whose Graves' disease went into remission during her pregnancy but thyrotoxicosis resumed post-partum [19]. However, instead of a recurrence of Graves' disease she in

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fact had transient thyrotoxicosis related to lymphocytic thyroiditis [19]. It is prudent to treat a woman with post-partum depression with thyroid hormone if the TSH level is over two U/ml. The beneficial effect of thyroid hormone replacement, however, can take up to six weeks for maximum benefit.

The expectation of referrals to a psychiatrist is that the psychiatrist will provide psychosocial and psychological treatment alone or combined with medical therapy [20]. There is a suggestion that acute lowering of monoamine oxidases (MAOs) in the early post-partum period contributes to post-partum major depressive disorders [3]. Another biogenic amine found to be lower in post-part women with major depression is serotonin [21]. Furthermore, a metabolite of norepinephrine was found elevated after delivery in women with major depression post-partum [22].

Antidepressant medication works by changing the biogenic amines acting as neurotransmitters in the brain. Generally the medication used are the newer serotonin re-uptake inhibitors and bupropion [23]. Generally it is considered that psychiatrists have the most experience with antidepressant medication working on brain neurotransmitters, and thus if a woman is seen by both a reproductive endocrinologist and a psychiatrist, the reproductive endocrinologist will generally relegate drugs manipulating biogenic amines to the psychiatrist if an endocrine etiology has not been found or correcting an endocrine defect has not provided a totally satisfactory result.

An exception to this general rule that the psychiatrist, not the gynecologist, should treat with drugs that effect biogenic amines may be if the treatment involves the sympathomimetic amine dextroamphetamine sulfate. This drug is well known to the psychiatrist for treating attention deficit hyperactivity disorder (ADHD) or just ADD without hyperactivity. However, the psychiatrist, similar to many other specialists outside the field of gynecology, are not familiar with the multitude of severe chronic or acute treatment-refractory pathological conditions, especially common in women, that are all related to hypofunction of the sympathetic nervous system [24-26].

## Case Report

The patient described herein presented at age 33 with post-partum unipolar depression shortly after the successful births of twins. The depression was so severe one month after delivery that she was committed for hospitalization. The hospitalization did not result in much improvement. She had received both psychosocial treatment and psychotherapy and was started on antidepressant medication. Though she was discharged from the hospital on fluoxetine Hcl and bupropion, she was still so depressed that she could not return to work. She was also taking topiramate for migraine headaches but this drug provided her no relief. She had resumed regular spontaneous menses so there was no evidence of estrogen deficiency. Her free thyroxin levels and TSH levels were obtained and they were normal. She was started on dextroamphetamine sulfate extended release capsule 20 mg once daily. When she returned in one month, she stated that within one week her

depression completely lifted, her fatigue markedly improved, and she had not had a migraine headache all month. Her insomnia also dissipated.

## Discussion

Despite the plethora of anecdotal reports with description of dramatic quick and long-lasting improvement in symptoms related to various organ systems, including migraine headaches and chronic fatigue (two of the additional complaints from this patient), most clinicians are not aware of the benefits of dextroamphetamine sulfate therapy [24, 25, 27-29].

One may expect that a psychiatrist, however, would be aware that in the past dextroamphetamine sulfate was commonly used for depression. Furthermore, the psychiatrist is very familiar with the use of dextroamphetamine sulfate for attention deficit hyperactivity syndrome. Nevertheless not only did the present woman's psychiatrist strongly disagree with the use of this drug for her post-partum depression, he refused to refill her other aforementioned antidepressant drugs if she insisted on taking dextroamphetamine sulfate against his advice.

As mentioned, in other chronic conditions that may fall out of the usual range of treatment parameters for the obstetrician/gynecologist generalist, as the primary care physician for women, it is important for the generalist to be familiar with the various conditions that respond to sympathomimetic amine therapy that resist standard therapy. If the specialist in another field is not aware of this therapy and/or even refuses to institute it even when presented with the supporting data for its use, the OB/GYN generalist may have to take over the managements of prescribing dextroamphetamine sulfate if the other specialist is not helping the woman's symptoms.

This case thus presents another treatment refractory condition (post-partum depression) that responds very well to dextroamphetamine sulfate.

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