# Bipolar Network News

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### Neuromarker Suggests Which Depressed Patients Will Respond to Cognitive Behavior Therapy Versus the Antidepressant Lexapro

Not every treatment for mood disorders works for every patient, and for the 60% of depressed patients whose first treatment is ineffective, this wrong guess can translate into months of suffering, wasted money, lost productivity, and risk of suicide. An important trend in treatment research is the search for biomarkers, that is, biological indicators that can predict which patients might be likely (or unlikely) to respond to a particular treatment. A 2013 study by McGrath et al. in the journal *JAMA Psychiatry* suggests that brain glucose metabolism is one such biomarker.

Patients with untreated major depressive disorder had their brain glucose metabolism measured and then were randomized to receive 12 weeks of treatment either with the SSRI antidepressant escitalopram oxalate (trade name Lexapro) or with cognitive behavior therapy. Low glucose metabolism in a part of the brain called the anterior insula (compared to the rest of the brain) predicted that patients would reach remission on cognitive behavior therapy and respond poorly to escitalopram, while high metabolism in the same area predicted the opposite, that patients would reach remission while taking escitalopram and respond poorly to cognitive behavior therapy.

Researchers will want to test this finding with patients over the long

#### Also in this issue:

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Rash

Marijuana Reduces White Matter More on NAC in Autism

**Treating Food Cravings** 

term, but the data from this study suggest that anterior insula glucose metabolism may be a successful biomarker that can guide initial treatment selection for patients with depression.

# Oral Scopolamine Promising for Depression

Intravenous scopolamine has shown promise as a rapid-acting antidepressant in studies by Carlos Zarate and colleagues at the National Institute of Mental Health (NIMH). Improvement on the drug can occur within 24 hours.

In a 6-week 2012 study, an oral preparation of scopolamine was more effective than placebo as an add-on medication to the selective serotonin reuptake intake (SSRI) antidepressant citalopram. Patients who received scopolamine and citalopram had higher rates of response and remission than those who received placebo and citalopram. The scopolamine group experienced more blurred vision and dizziness, which is to be expected from an anticholinergic drug, a drug that blocks the action of the neurotransmitter acetylcholine in the brain.

# Acupuncture with Paroxetine Better For Depression Than Paroxetine Alone

In a six-week study published by S.S. Qu et al. in the *Journal of Psychiatric Research* in 2013, participants with depression who received manual or electrical acupuncture along with the selective serotonin reuptake inhibitor (SSRI) antidepressant paroxetine (Paxil) improved more than those participants taking paroxetine alone.

More patients taking paroxetine alone needed increased doses to deal with symptom aggravation.

Patients who had received electrical acupuncture continued to show improvement four weeks after the treatment ended.

## Two Out of Three Studies of Armodafinil Have Failed in Bipolar Depression

At the US Psychiatric Congress in 2013, researcher T. Ketter reported on two recent studies of armodafinal (Neuvigil), which is approved for the treatment of narcolepsy. Doses of 150mg/day did not perform significantly better than placebo in the treatment of bipolar depression (in contrast to an earlier positive study).

Editor's Note: It appears that this drug will not play a major role in the treatment of bipolar depression, as some had hoped.

# Possible Heart Failure Risk with Pramipexole

We've written before about the drug pramipexole, which is typically used to treat Parkinson's disease and restless legs, but can also improve depressed mood and cognition in those with bipolar disorder. The Federal Drug Administration (FDA) published a warning in 2012 that the drug may increase risk of heart failure, though more research is needed to confirm this link. In a review of existing studies, the FDA found that heart failure occurred more often in participants taking pramipexole than those taking placebo, but the finding did not reach statistical significance.

#### Bipolar Network News

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# Low Omega-3 Fatty Acids Associated with Poor Cognitive Performance in Children

Omega-3 fatty acids (especially the type known as DHA) are essential for brain development and functioning, but most people eating a modern western diet consume low amounts of these compared to omega-6 fatty acids. Omega-3s are anti-inflammatory while omega-6s are pro-inflammatory. A large UK study published by Paul Montgomery et al. in the journal *PLOS* One in 2013 reported that healthy 7to 9-year-olds with lower levels of omega-3 long-chain polyunsaturated fatty acids in their blood (including DHA, DPA, and EPA) had lower reading ability and working memory, and also had more behavior problems.

The oils in fish are the best source of omega-3 fatty acids, and most of

the children with poor reading ability in the study fell short of the UK nutritional guideline that recommends eating two portions of fish per week.

Girls in the study had more dramatic deficits in omega-3 levels than boys. In adults, women tend to metabolize long chain polyunsaturated fatty acids more easily than men, but this difference is driven by hormones, and because the girls in the study had not yet reached child-bearing age, they did not reflect this benefit.

Omega-3 deficits in children have been connected with attention deficit hyperactivity disorder (ADHD), and supplementation with extra omega-3 fatty acids in the diet has led to improvements in ADHD.

#### **Fatty Acids in Mood Disorders**

Cultures in which people consume more omega-3 fatty acids (which have anti-inflammatory effects) and fewer omega-6 fatty acids (which have pro-inflammatory effects) have a lower incidence of depression and bipolar disorder. However, the exact role that each kind of fatty acid plays in the brain and whether dietary changes can improve mood disorders is still being investigated. A 2012 study by S.J. Evans in the *Journal of Psychiatric Research* examined the complete lipid profiles of participants with bipolar disorder to collect data on these questions.

The most significant results to come from the study were that levels of the long-chain omega-6 fatty acid dihomogamma-linolenic acid (DGLA) were positively correlated with neuroticism, depression severity, and decreased functioning. Depression severity was negatively correlated with the omega-6 fatty acid linolenic acid (LA) and the omega-3 fatty acid alpha-linolenic acid (ALA), and positively correlated with

fatty acid desaturase 2 (FADS2), an enzyme that converts LA to the omega-6 fatty acid gamma-linolenic acid GLA.

The data suggest that particular omega-6 fatty acids and the enzymes that lead to their production may be used as biomarkers that can indicate depression.

Editor's Note: Levels of specific omega-6 fatty acids and their related enzymes were found to correlate with depression severity in this study. Since omega-6 fatty acids are pro-inflammatory, diets higher in omega-6 fatty acids are associated with more cardiovascular problems, and a 2012 article by *Chang et al. in the* Journal of Psychiatric Research reported that completed suicides in bipolar patients with cardiovascular disorders were significantly higher than in those with bipolar disorder without cardiovascular illness, it seems a healthy diet can have multiple benefits, including potentially reducing depressive burden, cardiovascular risk, and suicide risk.

#### **Medicinal Herb May Help Cognitive Dysfunction**

Many patients with bipolar disorder experience cognitive deficits that impede their recovery and that persist during times of wellness. In a double-blind placebo-controlled study by K. N. Roy Chengappa et al. published in the *Journal of Clinical Psychiatry* in 2013, the herb Withania somnifera (WSE, commonly called ashwagandha and sold under the name Sensoril) was significantly better than placebo at improving patients' performance on three different cognitive tasks.

In the eight-week study, 53 patients took either 500 mg of WSE or placebo in addition to their regular medications.

The herb, which has traditionally been used in Ayurvedic medicine in India as an aid to resisting stress and disease, improved performance on digit span backwards (a test of shortterm memory in which the subject must repeat a sequence of numbers backwards), Flanker neutral (a test of response time in which a subject must repress their instinct to give an incorrect response), and the Penn Emotional Acuity Test (which requires subjects to correctly identify facial emotions depicted in photographs).

Mood and anxiety levels were not different for the group taking WSE and the group taking placebo.

The researchers hope to continue their investigation of WSE with larger and longer-term studies that will explore the effects of different doses of WSE.

#### **Caffeine Improves Long-term Recognition Memory**

In a 2014 study published by Michael A. Yassa et al. in the journal Nature Neuroscience, a 200mg caffeine pill (about the equivalent of a strong cup of coffee) improved long-term recognition memory. One hundred sixty participants who were not regular coffee drinkers were shown a series of 200 pictures, and 24 hours later they were given a surprise test. Compared to participants who received a placebo, those participants who received 200mg of caffeine were better able to discriminate which pictures they had seen before and which ones were new. Participants who received 100mg of caffeine did not show

this effect, while those who received 300mg showed the same improvement in memory but also experienced side effects such as headache and nausea.

As long as a cup of coffee does not make its drinker more anxious, it may help boost memory.

Editor's Note: Coffee may have other benefits. In research collected by the Bipolar Collaborative Network (in which this editor is an investigator), patients who drank coffee were less likely to be overweight. Yassa also believes based on other research that caffeine is associated with a reduced risk for Alzheimer's disease and that it increases longevity.

#### Micro-Nutrient Product Effective in Adult ADHD

EMPowerPlus is a nutritional supplement marketed by the company Truehope as a way of correcting nutritional deficiencies that contribute to mood and anxiety disorders. In 2014 Rucklidge et al. published the first controlled study of EMPowerPlus in the *British Journal of Psychiatry* showing that the supplement was more effective than placebo in adults with untreated ADHD.

EMPowerplus contains 36 ingredients, including 14 vitamins, 16 minerals, 3 amino acids, and 3 antioxidants. Patients were randomized to receive either 15 EMPowerPlus pills per day or 15 placebos per day for 8 weeks, and those patients receiving the supplement were rated as more improved by the end of the study. Effect sizes were moderately robust and side effects did not differ.

Editor's Note: Multiple uncontrolled studies have suggested the efficacy of EMPowerPlus in childhood mania and related conditions, but this is the first formal placebo-controlled study of the supplement in adults with ADHD. A study in children with ADHD is planned, but it would also be important to study this micronutrient formulation in childhood bipolar disorder, where there is some anecdotal evidence (from Charles Popper at McLean Hospital in Boston and Mary Fristad at the Ohio State University) of excellent responses in children with highly treatment-resistant bipolar illness.

#### Iron Deficiency Linked to Psychiatric Disorders in Children

Iron deficiency is the most prevalent nutritional deficiency in industrialized countries and can cause problems with cognitive and intellectual development. New research published in the journal *BMC Psychiatry* shows that it has psychiatric ramifications as well. Children

and adolescents with iron deficiency anemia are at greater risk for psychiatric disorders, including depression, bipolar disorder, anxiety, and autism.

Iron supplementation should be implemented in children with iron deficiency anemia in order to prevent any possible psychiatric repercussions, and similarly, psychiatrists should check iron levels in young patients with psychiatric disorders.

Iron provides myelin for white matter in the brain and plays a role in the function of neurotransmitters.

## Diabetes Drug Metformin May Impair Cognition, But Vitamin B12 May Help

Metformin, one of the most popular drugs to treat type 2 diabetes, interferes with uptake of vitamin B12, which can in turn lead to some neuronal dysfunction resulting in cognitive dysfunction. Several studies have sought to clarify this link, which may affect up to 30% of patients taking the drug.

Most recently, an Australian analysis of 1354 aging patients found that those with type 2 diabetes performed less well on tests of cognitive abilities, and those diabetic patients with low vitamin B12 levels (below 250 pmol/L) scored lower than those diabetic patients with adequate levels.

Because of the malabsorption problem caused by metformin, patients taking the drug may not be able to get enough B12 from a balanced diet alone and may need supplemental B12. Those who follow a vegetarian diet, have had bowel surgery, have certain complications with the stomach, or who take other medications that depress stomach acid may be at special risk.

Physicians should carefully monitor B12 levels in patients taking metformin, particularly those who have been taking the drug for more than 3 years or those who already suffer from some sort of cognitive impairment.

#### **Lithium Lowers Risk of Suicide and Mortality**

Suicide is a serious risk for people with mood disorders. We have noted before that various studies of lithium show that the drug lowers suicide risk in people with mood disorders. A 2013 meta-analysis by Andrea Cipriani et al. in the journal *BMJ* confirms this finding. The review of 48 randomized controlled trials comparing lithium with placebo or other active drugs in the long-term treatment of mood disorders showed that lithium reduces the risk of suicide and death from any cause.

Lithium was more effective than placebo at reducing number of suicides and deaths from any cause, and more effective than carbamazepine and anticonvulsants in general at reducing deliberate self-harm. The authors wrote that lithium seems to reduce risk of suicide and death by more than 60% compared to placebo.

Lithium may reduce suicide risk by preventing relapse of mood disorders, but it may also have other mechanisms of action, such as decreasing aggression or impulsivity.

One thing to note about these findings is that the reduction in suicide risk also applies to those with unipolar depression, not just those with bipolar disorder. There is a case to be made that lithium treatment could be targeted specifically to reduce suicide risk.

#### Lithium Increases Parathormone, Reduces Vit D

Lithium treatment is associated with a moderate incidence of hyperparathyroidism, usually observed as an elevated concentration of calcium in the blood in addition to elevated parathormone levels, and often associated with the development of a tumor (adenoma) of the parathyroid gland. Older patients who have been taking lithium for many years may be at increased risk for these conditions.

In a recent study by Van Melick et al. published in the *International Journal of Geriatric Psychiatry*, among 111 patients with an average age of 75 years, 24-hour calcium excretion was elevated in only 3% of the patients, but **levels of parathormone were elevated in 48%**. Duration of lithium treatment was

associated with lower vitamin 25OH D. Vitamin D is important for healthy bones and good cognitive functioning.

Editor's Note: Lithium-induced hyperparathyroid should be investigated in those with elevated calcium levels, and if found, surgical removal of the parathyroid gland may be indicated. Low vitamin D is common in the US population. It is also particularly low in patients with mania and elderly patients on who have been on lithium for more than ten years. (Levels are below normal in 77% of these elderly individuals.) Assessment of vitamin D levels in those on long-term lithium is advisable, in addition to monitoring the thyroid, kidney function, and calcium metabolism.

### Lavender Oil Product Silexan May Improve Generalized Anxiety Disorder

An oral preparation of lavender oil called Silexan decreased anxiety significantly more than placebo in a study by S. Kasper et al. published in the *International Journal of Neuropsychopharmacology* in 2014.

This randomized double-blind study of 539 patients with Generalized Anxiety Disorder compared two different doses of Silexan (160 mg and 80 mg) with a 20 mg dose of the antidepressant paroxetine and with placebo.

Both doses of Silexan reduced anxiety significantly more than placebo did. While paroxetine performed better than placebo, that result did not reach statistical significance.

Sixty percent of the patients who received the 160 mg dose of Silexan

showed reductions of 50% in scores on the Hamilton Anxiety Scale (HAMA). In addition to its anti-anxiety effects, Silexan was associated with an antidepressant effect, improved general mental health, and improvement in health-related quality of life.

# Marijuana Addiction Associated with White Matter Loss and Brain Changes in Healthy People and in People with Schizophrenia

It has been established that cannabis use is associated with impairments in working memory, but researchers are still investigating how these impairments come about. A 2013 study by Matthew J. Smith et al. in the journal *Schizophrenia Bulletin* compared regular marijuana users both with and without schizophrenia with demographically similar people who did not use marijuana.

Using magnetic resonance imaging (MRI), the researchers were able to map each participant's brain structures. Healthy people who were marijuana users showed deficits in white matter (axons of neurons that are wrapped in myelin) compared to healthy people who did not use the drug. Similarly, patients with

Combination of NAC and Risperidone Improves Irritability in Autistic Disorders

In a 2013 study of 40 children and adolescents with autism spectrum disorders published by Ahmad Ghanizadeh and Ebrahim Moghimi-Sarani in the journal BMC Psychiatry, the combination of the over-thecounter nutritional supplement n-acetylcysteine (NAC) and the atypical antipsychotic risperidone alleviated irritability more than the combination of placebo and risperidone. Side effects were mild. The data extend 2012 observations by A.Y. Hardan et al. in which NAC improved irritability and stereotypy (repeated behavior) in autism more than placebo did.

The two studies taken together support the effectiveness of NAC prescribed either alone or in conjunction with an atypical antipsychotic for the treatment of autism.

schizophrenia who used marijuana regularly had less white matter than those patients with schizophrenia who did not use the drug. There were also differences in the shapes of brain structures, including the striatum, the globus pallidus, and the thalamus, between cannabis users and non-users.

Differences in the thalamus and striatum were linked to white matter deficits and to younger age of cannabis use disorder onset.

Differences between cannabis users and non-users were more dramatic across the populations with schizophrenia than across the healthy populations.

Editors note: Future research is needed to determine whether marijuana causes these brain changes, or whether the brain changes are a biomarker that shows a vulnerability to marijuana addiction (although the latter is less likely than the former).

Other data show that marijuana is associated with an increase in psychosis (with heavy use), cognitive deficits, and an earlier onset of both bipolar disorder and schizophrenia in users compared to non-users. These findings make pot begin to look like a real health hazard. With legalization of marijuana occurring in many states, ease of access will increase, possibly accompanied by more heavy use. The most consistent pharmacological effect of marijuana is to produce an amotivational syndrome, characterized by apathy or lack of interest in one's usual activities. Particularly for those already struggling with depression, pot is not as benign a substance as it is often thought to be.

## **Bupropion Plus Naltrexone Reduces Brain Response to Food Cues**

The combination of antidepressant bupropion (Wellbutrin) and naltrexone (Revia), a drug that helps alcoholics resist the craving for alcohol, can help patients keep their weight down. Last year we summarized an article by Smith et al. in the journal *Diabetes*, *Obesity, and Metabolism* that showed that obese patients with diabetes treated with the combination of bupropion and naltrexone had excellent weight loss and reduction in body fat compared to those treated with either drug alone or with placebo.

A more recent study by G. J. Wang et al. published in the *International Journal of Obesity* in 2013 shows that the combination of 360mg of bupropion sustained release and 32mg of naltrexone sustained release works by

reducing patients' response to food cues. Forty women were shown a video of their favorite food being prepared, which stimulated parts of the brain associated with visual stimuli and other functions. Those who received the combination of naltrexone and bupropion had lessened hypothalamic response to the videos compared to those who received placebo, and also showed activity in parts of the brain associated with inhibitory control (the anterior cingulate), internal awareness (the superior frontal cortex, the insula, and the superior parietal cortex), and memory (the hippocampus).

Editor's Note: It looks like the drug combination prompts the brain to say, "Wow, that looks good, but maybe I shouldn't take in any more calories today."

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#### Genetic Test Predicts Risk of Severe Rash While Taking Carbamazepine

Carbamazepine (also known by its trade name Tegretol or, for extended release, Equetro) is one of the most widely used drugs for the treatment of epilepsy, and is relatively underutilized in the treatment of bipolar disorder. One of the reasons is fear of a rare serious rash or other side effects.

The risk of the serious rash ranges from about one in 5,000 to one in 10,000. Loss of white blood cells that fight infection (a condition called agranulocytosis) occurs in about one in 20,000 people taking carbamwhite blood cells, red blood cells, and platelets (aplastic anemia) occurs in about one in 100,000 patients.

There is no way of predicting who will develop the blood disorders in reaction to carbamazepine use. A patient should contact their doctor and get a white blood cell count if they develop some warning signs of carbamazepine. these conditions, such as

a fever or sore throat without other explanation or signs of bleeding or red spots under the skin (called petechiae) that could indicate low platelets.

#### Genetic Test for Risk of Rash

A genetic test is available that can help estimate the likelihood of the serious rash among certain populations. In those of Asian descent, particularly Han Chinese, Thai, Malaysian, and Indian populations, having a version of the gene HLA-B known as HLA-B\*1502 is highly associated with developing the rash. (The odds ratio was 79.84 in a 2013 meta-analysis by Tangamornsuksan et al. in the journal JAMA Dermatology).

In those of northern European or Japanese descent, having a version of the gene HLA-A known as HLA-A\*3101 is associated with the severe rash. (Odds ratio for developing the most severe rash was 25.93 in a study of Europeans published by McCormack et al. in the New England Journal of

Medicine in

2011 and 10.8

in a study of

Japanese pub-

lished by Ozeki

et al. in the

journal Human

*Genetics* in 2011).

A\*3101 gene

is present in

about 2 to 5% of

Europeans and

9% of Japanese.

serious rash

with redness

and itchiness

occurs in about

5 to 10% of pa-

tients taking

carbamazepine,

A mild, non-

HLA-

Molecular

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Some patients who do not respond to another anticonvulsant such as azepine, while a decrease in valproate do respond to carbamazepine. Patients with bipolar depression who have had a prior history of alcoholism may also do particularly well on

> and almost always goes away quickly upon stopping the drug. For patients taking carbamazepine who develop any rash, stopping the drug is the safest and most conservative thing to do. However, those who have taken the HLA test who know they do not have the risk genes and have only the benign rash might want to consider continuing to take the drug.

#### **Benefits of Carbamazepine**

There are a number of reasons why carbamazepine may be worthy of a treatment trial in patients with bipolar disorder who are not doing well on other agents. Carbamazepine works well in many patients with bipolar illness who have some of the common clinical predictors of a poor response to lithium. These include: having dysphoric (anxious, irritable) rather than euphoric mania, having an anxiety or substance disorder comorbidity, having had many prior episodes or rapid cycling (four or more episodes/year), not having distinct episodes with a period of wellness in between, having a sequential pattern of depression followed by mania followed by a well interval (D-M-I rather than M-D-I), having a schizoaffective disorder with delusions or hallucinations that persist after a manic or depressive episode has ended, and having no family history of mood disorders (especially bipolar disorder).

Some patients who do not respond to another anticonvulsant such as valproate do respond to carbamazepine. Patients with bipolar depression who have had a prior history of alcoholism may also do particularly well on carbamazepine. A benefit of the long-acting version of carbamazepine called Equetro is that it can be taken at bedtime and thus help with sleep and minimize daytime side effects.

Editor's Note: Carbamazepine induces liver enzymes called CYP3A4 that increase the metabolism (breakdown) of carbamazepine and other drugs. Several drugs that inhibit 3A4 (such verapamil and erythromycin) prevent the breakdown of carbamazepine, causing blood levels of the drug to increase and produce side effects. If you are taking carbamazepine, tell your pharmacist so he or she can monitor any other drugs you are taking for potential interactions with carbamazepine.

Knowing about the rare skin and blood side effects of carbamazepine and some of the clinical predictors of a good response to the drug may be helpful in determining whether the potential benefits of carbamazepine outweigh the risks.

#### Increased Antibodies and Inflammation in Mania

While the reasons why one person develops bipolar disorder and another does not remain mysterious, the current thinking is that genes contribute some risk while immunological abnormalities contribute other risks. Researchers have identified certain antibodies whose levels spike during an episode of mania, as if the patient is having an immune reaction. These are referred to as biomarkers or inflammatory markers.

While various biomarkers for mania have been identified, until recently their effects had only been examined independently. A 2013 article by Dickerson et al. published in the journal PLOS ONE examined four biomarkers in combination. Each was a type of antibody: to the NR peptide of the NMDA receptor, to gliadin (a protein derived from gluten), to Toxoplasma gondii (a parasitic protozoan), and to Mason-Pfizer Monkey Virus. Measures of these four types of antibodies made up a combined inflammation score for participants in the study.

The study compared 57 patients presenting with a manic episode with 207 non-psychiatric controls and 330 patients who had had recent onset of psychosis, schizophrenia, or bipolar depression. The combined inflammation score of the mania group was

significantly higher than the other groups at the time of hospital admission and at the time of evaluation several days later. It had returned to normal (i.e. not different from the other groups) at followup six months later, although those with the highest combined inflammation scores were at risk for re-hospitalization during that period.

The findings of this study suggest that hospitalization for mania is associated with immune activation, and the level of this activation predicts subsequent re-hospitalization. Treatments for mania that target this inflammatory response should be investigated.

## Resistance Training Is Good For Fibromyalgia

About a year ago we reported that exercise was recommended for patients with fibromyalgia and chronic fatigue syndrome. The case for exercise has been bolstered by a 2013 analysis published by the Cochrane Collaboration, a nonprofit research network. The authors reviewed five randomized clinical trials that compared resistance training with a control or another type of physical activity in a total of 219 women. Resistance training is exercise that is performed against resistance with the intention of improving muscle strength, and can include weights, resistance machines, or elastic resistance bands. The authors found that in

the studies they analyzed, resistance training was both beneficial and safe for women with fibromyalgia, and aerobic exercise helped reduce pain.

As reported in *Medscape Medical News*, lead author Angela Busch said, "It appears that people with fibromyalgia can benefit from this form of exercise, but we noted that the programs we examined involved supervised exercise and started low and gradually increased the resistance. There are particular health benefits associated with resistance exercise (e.g. increasing bone strength, which is important for preventing osteoporosis), so it is

good to know that clinicians can safely [recommend] this form of exercise."

Whether patients will widely accept this recommendation remains to be seen since some doctors have advised only rest. The key to avoiding pain exacerbation while adding an exercise regimen may be, like in much of medicine, to start slow.

Editor's Note: The antidepressant milnacipran (Savella) is the most recent drug to receive Federal Drug Administration approval for the treatment of fibromyalgia. Pregabalin (Lyrica) and duloxetine (Cymbalta) were approved for fibromyalgia in 2007 and 2008, respectively.

## Mental Health Care Parity Ruling Announced

In 2013 we described a speech given by Congressman Patrick J. Kennedy about the need for parity in care for people with mental illnesses. In late 2013, Health and Human Services Secretary Kathleen Sebelius issued a final rule on the Mental Health Parity and Addiction Equity Act of 2008, effectively requiring that health insurance coverage

for mental health and substance abuse treatment be comparable to coverage of physical ailments.

The rule was prompted in part by mass shootings that were linked to mental health patients. Sebelius announced the new rule at a press conference with former first lady Rosalynn Carter, who has been a supporter of mental health research for decades.

According to the *New York Times*, state insurance commissioners will need to enforce the new rule, and more money may be required to fund behavioral health clinics.

This historic milestone may allow patients to get medical care they had previously been unable to afford.

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