

Parkinson's Perspective

A newsletter from the UW Health Movement Disorders Program

From the Editor's Pen . . .

Depression causes pain and suffering and worsens the disabilities associated with Parkinson's Disease. Depression is part of Parkinson's Disease as much as slowness of movement is. Having depression is not the patient's fault. Depression is treatable.

These are the facts about depression and Parkinson's Disease but unfortunately these facts are often not appreciated. Many people think that depression is somehow different than other "physical" diseases. The patient is not somehow a lesser or weaker person because they have depression. Often, insurance companies do not provide the same coverage for depression treatment as they would for treating "physical" problems due to Parkinson's Disease. This is not true, and it is unfair. Consequently, many patients do not seek help for depression and when they do, they have limited care at greater costs to themselves. The greatest tragedy about depression is that it often goes untreated.

Depression for many patients is due to the same kinds of injury to the brain that causes all the other physical manifestations of the disease. It is not just a psychological reaction to the disabilities associated with Parkinson's Disease. Indeed, studies have shown that patients may have symptoms of depression long before the other symptoms, such as tremor and slowness of movement, become apparent.

In addition to the emotional pain and suffering, depression also can worsen many of the other symptoms of Parkinson's Disease. Often, aggressive treatment of the depression can improve the other symptoms—including confusion and forgetfulness—that depression may cause. Consequently, it is important to first recognize and then aggressively treat depression. Many medications

can help, and counseling is useful. Rarely, electroconvulsive therapy is necessary and can be life-saving.

Most anti-depressant medications are compatible with other medications used to treat Parkinson's Disease. Occasionally, pharmacists may be concerned about using certain anti-depressants in combination with selegiline. However, other than so-called MAO inhibitor anti-depressants, the possibility of side effects from the combination of selegiline and the other anti-depressants is very small.

There may be some difficulties combining certain anti-depressants with the new medication rasagiline (Azilect). While the FDA recommends that patients on rasagiline (Azilect) avoid most anti-depressants, the FDA may be overcautious in this regard. In clinical trials where hundreds of patients were taking rasagiline (Azilect) and anti-depressants, there were no significant side effects that could be attributed to the combination of rasagiline (Azilect) and these other anti-depressants. Patients and/or their caregivers should consult with their physicians before combining anti-depressants with rasagiline (Azilect).

The greatest tragedy about depression is how often it goes unrecognized and untreated. If there is the slightest suspicion that the patient may be depressed, the patient, family members or care givers should not delay in discussing the possibility of depression with their physician.

Sincerely,



Erwin B. Montgomery Jr. MD

Parkinson's Disease and Depression

Brian D. Bell, PhD

Prevalence of depression

Parkinson's disease is generally considered a neurological disorder. However, because of the frequency of mood and other psychiatric complications in PD, it could be conceptualized as a neuropsychiatric disease. In fact, James Parkinson himself observed in 1817 that depression is commonly associated with PD.

The estimated prevalence of depression in PD varies according to the type of mood assessment applied (interview versus self-report questionnaire), the diagnostic criteria or definition of depression (the number and type of symptoms required), and the research setting (community based versus neurology clinic). But overall the data suggest that at any given time, 20 to 40% of individuals with Parkinson's disease (PD) are experiencing a depression of some type. This is a higher rate than that found in the general population.

Diagnosis

Depression can be difficult to diagnose in PD because of the *overlap* between symptoms of depression and PD. For example, the biological symptoms typical of depression,

such as low energy, insomnia or excessive sleep, weight loss, diminished sexual function, and an emotionless face can be directly related to the neuroanatomical disruption characteristic of PD. And so these symptoms are not *necessarily* evidence of depression. Conversely, the psychomotor slowing of depression might be accidentally overlooked in a patient with PD.

Basis of depression in PD

Depression in PD could be considered an understandable *reaction* to a disabling chronic illness. However, some researchers believe depression may be a part of the disease or *endogenous* to it and caused by neurological changes. This notion is supported by the fact that sometimes depression precedes the diagnosis of PD. Of course, the cause of depression in patients with PD could be a combination of a subjective reaction to the illness and the brain changes brought about by the disease. The consensus is that depressive symptoms should be addressed and treated by physicians regardless of whether these symptoms are part of the neurobiology of PD or due to a separate process.

Treatment

The psychiatric complications of PD require attention because they can of course exacerbate the already considerable physical challenges brought on by the disease. In fact, an international survey of patients with PD discovered that depressive symptoms were the most important factor in patient quality of life ratings. Another reason to treat depression in PD is that reports of caregiver burden correlate significantly with patients' depression and quality of life scores.

Anti-parkinsonian medications

It has been recommended that optimal anti-parkinson symptom treatment should be the first step in the treatment of PD. It is notable that

some PD medications may have an anti-depressant effect of their own. The antidepressant effect of *dopamine agonists*, such as pramipexole, is probably due to stimulation of D₃ dopamine receptors whereas the drug's effect on PD symptoms is related to another type of dopamine receptor (D₂). Dopamine agonists may be helpful in particular for patients who experience on-off motor fluctuations, with their depressive symptoms being related to the "off" periods.

Antidepressant medications

When the use of an antidepressant is considered in a patient with PD, its potential side effects and interactions with PD drugs must be weighed against the adverse effects of the depression itself. Although it should be noted that the majority of the studies did not include a placebo control, there is research evidence that antidepressant medications can have a large positive effect on depression in PD.

There are different classes of antidepressant medications. The selective-serotonin reuptake inhibitors (SSRIs: e.g., Zoloft, Prozac, Paxil, and Celexa) are prescribed most often in PD patients with depression. In general, the SSRIs are safer and better tolerated by patients than the tricyclic antidepressants (TCAs: e.g., Elavil, Tofranil, and Pamelor). For example, the SSRIs are more likely to stimulate than sedate, and they have fewer cardiac and cognitive side effects. In addition, the SSRIs can effectively treat anxiety and pain, which also are common in patients with PD.

Research studies have shown that PD symptoms can worsen as a result of SSRI use, but this adverse effect occurred only in a small minority of patients and the effect was reversible after discontinuation of the SSRI. However, the combination of Selegilene and SSRIs could potentially result in a deadly serotonin syndrome. One author states that when Selegilene is being taken at doses > 20 mg per day, it should



Brian D. Bell, PhD

not be used together with SSRIs. Finally, more research is necessary to determine the best therapeutic dose ranges for antidepressant medications in individuals with PD.

Psychotherapy

Some patients with depression may experience medication interaction effects, may not respond to pharmacotherapy, or simply be reluctant to take another medication. For these patients in particular, effective psychotherapeutic options would of course be valuable.

To date, there have been very few studies of the effectiveness of psychotherapeutic techniques, such as cognitive behavioral therapy (CBT), for the treatment of depression in PD. The research that has been done suggests non-pharmaceutical approaches can help improve mood, quality of life and health outcomes. In one study, those individuals with the most severe depression seemed to benefit the most from CBT. The cognitive model of depression posits that distorted interpretations and errors of thinking underlie depression. One challenge to this model in the treatment of people with a serious medical illness is that negative thoughts about loss of function or a poor prognosis can also be realistic thoughts. However, the use of coping strategies and other techniques for managing grief and other emotional distress still can be effective in this context.

The growing trend toward use of online support groups may serve patients with PD well. Communicating with a group via computer allows one to access support without leaving the home. For individuals who have difficulty typing, a friend or spouse could possibly do the computer keyboard typing. A recent study in California found that participation in an online support group that included professional facilitators positively affected mood and quality of life in a group of patients with PD.

ECT and rTMS

In non-demented PD patients, electroconvulsive therapy (ECT) can be an effective choice for depression

when other treatments have failed. This treatment requires close management by a psychiatrist.

Repetitive transcranial magnetic stimulation (rTMS) is a new experimental treatment for both PD and depression that involves administration of electric stimuli to a very specific region of the brain. It is considered safer than ECT, but its effectiveness still is being explored.

Exercise

Regular exercise sometimes can help improve both physical and mental health in individuals with PD.

Psychosis

The usual cause of the onset of delusions, hallucinations and paranoia in PD is either the addition of a new PD drug, such as amantadine, a dopamine agonist or Selegiline, or an increase in levodopa. A head injury or a metabolic imbalance can also be responsible for these types of behavioral changes. If the dramatic change in behavior is actually due to a primary psychotic depression, rather than an adverse medication or injury effect, both an antidepressant and an atypical antipsychotic medication are called for. At the same time, a reduction in or elimination of one or more of the patient's anti-parkinsonian drugs might be necessary.

Deep brain stimulation (DBS)

DBS surgery, including bilateral subthalamic nucleus (STN) surgery, can result in the appearance or exacerbation of personality, anxiety or mood disorders in some PD patients. In particular, a history of major depression is a risk factor for a significant post-operative mood disorder, even when surgery results in marked improvement in motor functioning.

Summary

Depression is common in patients with Parkinson's disease. It appears there is a strong neurochemical basis for the psychiatric complica-

tions of PD. However, depression in PD is likely due to multiple factors, including patients' perception of the illness. Because depression can be associated with decreased quality of life, cognitive problems, and caregiver distress, there is a need for much more controlled research on the treatment of depression in PD.

Effective treatment of the neuropsychiatric complications of PD can be complex. As more is discovered about the phenomenology or presentation of depression in PD, the effectiveness of treatment could improve. But it should be emphasized that current antidepressant medications and psychotherapy have shown effectiveness for patients with PD, and so both the depressive symptoms and motor symptoms of the illness should be addressed.

References

- Burn, D., & Troster, A. (2004). Neuropsychiatric complications of medical and surgical therapies for Parkinson's disease. *Journal of Geriatric Psychiatry and Neurology*, 17, 172-180.
- Cole, K., & Vaughn, F. (2005). The feasibility of using cognitive behaviour therapy for depression associated with Parkinson's disease: A literature review. *Parkinsonism and Related Disorders*, 11, 269-276.
- Houeto, J. et al. (2002). Behavioral disorders, Parkinson's disease and subthalamic stimulation. *Journal of Neurology, Neurosurgery and Psychiatry*, 72, 701-707.
- Lieberman, A. (2006). Depression in Parkinson's disease – a review. *Acta Neurologica Scandinavica*, 113, 1-8.
- Lieberman, M. et al. (2005). Online support groups for Parkinson's patients: A pilot study of effectiveness. *Social Work in Health Care*, 42, 23-38.
- McDonald, W. et al. (2003). Prevalence, etiology, and treatment of depression in Parkinson's disease. *Biological Psychiatry*, 54, 363-375.
- Schrag, A. et al. (2001). What contributes to depression in Parkinson's disease? *Psychological Medicine*, 31, 65-73.
- Schrag, A. et al. (2006). Caregiver-burden in Parkinson's disease is closely associated with psychiatric symptoms, falls, and disability. *Parkinsonism & Related Disorders*, 12, 35-41.
- Veazey, C. et al. (2005). Prevalence and treatment of depression in Parkinson's disease. *The Journal of Neuropsychiatry and Clinical Neurosciences*, 17, 310-323.
- Weintraub, D. (2005). Depression in Parkinson's disease. *Primary Psychiatry*, 12, 45-49.

Meet the Staff

Laura J. Buyan Dent, M.D., Ph.D.

Please join me in welcoming Laura Buyan Dent, M.D., Ph.D., to the Movement Disorders Program. She is coming to us from Angels Neurological Center in Boston where she was the director of the movement disorders program and a general neurologist in private practice. Dr. Buyan Dent is no stranger to Wisconsin: she was born in Milwaukee and did her residency at University of Wisconsin from 1999–2002.

Dr. Buyan Dent began her schooling at Marquette University and graduated cum laude with a Bachelor of Science degree in physical therapy. After studying at McGill University in Montreal, she decided to enroll in a Ph.D. program

at the State University of New York Health Science Center in the Department of Anatomy and Cell Biology. Once she finished her dissertation, “Studies to Facilitate Regeneration of Dorsal Column Axons Following Neonatal Spinal Injury,” she returned to Wisconsin and enrolled in the MD program at UW.

In 2002, Dr. Buyan Dent completed her residency here and moved to Boston to become a fellow in movement disorders. She chose to go to Boston because the program offered a strong clinical emphasis, and would further her goal in developing clinical expertise. Dr. Buyan Dent saw many patients and even worked on some clinical research there. Once she completed her fellowship, Dr. Buyan Dent became a movement disorders specialist in private practice.

She not only saw general neurology patients but was also the



movement disorders specialist for the group. While she was in private practice, Dr. Buyan Dent helped to open a movement disorders clinic at New England Sinai Rehabilitation Hospital.

She moved back to Wisconsin, with her husband and two young sons. We would like to welcome Laura Buyan Dent, M.D., Ph.D., who will be a great asset to our program.

Safely Taking Medications with Parkinson's Disease

Sheila Aton, Pharm.D.

By now you may have become accustomed to taking one or more medications to treat your Parkinson's disease (PD.) But did you know that there are certain medications which should be avoided if you have PD?

Most prescription and over-the-counter medications can be taken safely if you have PD. However, if you are hospitalized or are prescribed medications by someone who is unfamiliar with PD, or is unaware of your diagnosis, you may be prescribed medications you should avoid. It is important for you to be aware of what these medications are.

Antinausea/antivomiting: some medicines used to control nausea and vomiting block dopamine and can make your PD symptoms

worse. These medications are Compazine (prochlorperazine) Reglan (metoclopramide) and Inapsine (droperidol.)

Agitation/confusion: these medications also block dopamine and can make PD symptoms worse. These medications are Haldol (haloperidol) Thorazine (chlorpromazine) Risperdal (risperidone) Zyprexa (olanzapine.)

Also in this category, but not commonly used, are medications used to treat schizophrenia or psychosis such as Stelazine (trifluoperazine) Prolixin (fluphenazine) Navane (thiothixene) Moban (molindone) Mellaril (thioridazine) Loxitane (loxapine) and Serentil (mesoridazine.)

Depakote (valproic acid): this medication is used to treat seizures and sometimes mood disorders or

migraines. It can increase tremors or make them worse.

Demerol (meperidine): this pain medication is administered mostly in the hospital or in the dentist's office. It can cause hallucinations and confusion in patients with PD.

If you have questions or concerns related to your medications, you should always discuss them with your doctor, nurse or pharmacist. They are the experts and have a great amount of experience in managing patients with all types of special medication needs.

If you would like a wallet size version of the medication list above, please contact Jessica Hahn at 608.263.7991 or hahn@neurology.wisc.edu.

Caregivers Connecting: Caregiving at the End of Life

HospiceCare is holding its first annual caregiver workshop on January 27, 2007, from 8:00am – 2:00 pm. The conference is for family members and others caring for a person near the end of life. There will be five different workshops designed to help educate and support caregivers during their caregiving journey: Fears About Caregiving, Making Plans, Taking a Breath, Saying Goodbye, and the Dying Process. There is a \$15 fee and scholarships are available. Plans for providing respite care are being made. If you would like more information, please call HospiceCare at (608) 327-7145.

Additional Help

Looking for a place to feel like you're making a difference? Know of someone who is a go-getter? Then look no further to the Wisconsin Chapter of the APDA. You may be thinking that only people with Parkinson's disease or caregivers can join, but that is not the case. Anyone can join this great cause of promoting awareness and helping ease the burden of Wisconsin's Parkinson's population. More than just the patient and caregiver are affected by Parkinson's disease. You have to take into account their family and friends and we want to help educate everyone so they know more about Parkinson's disease. If you would like more information about this great chapter, please email apdawi@gmail.com or contact Jessica Hahn at 608.263.7991. I hope you consider joining this great effort of "Easing the Burden to Find a Cure."

Communicating with Your Doctor

Take an active role in your health care. Your doctor should welcome this. A good doctor-patient relationship is a partnership, with both of you working together toward the goals of solving medical problems and improving your well being.

How well the two of you communicate is one of the most important steps to getting satisfactory health care.

Be Prepared

1. Write down any questions that you need to ask. List the most important ones first in case time runs short.
2. If you are ill, write a list of your symptoms.
3. Try to bring someone with you if you have a hearing or comprehension problem.

The First Visit

1. If this is the first visit, be sure to bring your medical records, if you have not had them transferred in advance.
2. Bring a list of all your medications (prescriptions and over-the-counter) and supplements.
3. Allow extra time for locating the office, parking, and filling out paper work. Carry enough cash to cover parking charges.
4. Bring your insurance cards and any other necessary documents.
5. Have a pen or pencil and paper for notes. You might consider using a tape recorder, with the doctor's permission.

Help Yourself

1. Tell your doctor if there have been changes in your condition, such as loss of appetite, weight gain or loss, sleep problems, or energy level.

2. Tell the doctor if you have had trauma in your life (a family death, divorce, or change of residence, for example).
3. If you have heard of new treatments for your condition, ask your doctor if he or she thinks they could be of benefit for you.
4. Your doctor can't read your mind. Speak up. Voice your feelings in a positive way.
5. If you don't understand, ask questions.
6. If you are given a new prescription, you should know what it is supposed to do. Ask when to take it, with or without food, and what the side effects might be. If expense is a problem, mention that.
7. Repeat what you think the doctor said, so he or she can verify that you understand correctly.

It is very important that you have confidence in your doctor and feel relaxed during the visit.

If, after after a few w consultations, you don't feel positive about your doctor, it is probably time to look for another physician to take care of your health needs.

*Dallas Area Parkinsonism Society,
April 2005*

The UW Health Movement Disorders Program acknowledges the support of **Boehringer Ingelheim**, which provided an unrestricted educational grant for the publication of this newsletter.

Gene therapy research targets Parkinson's disease

By Nishant Bagadia

Marina Emborg is using gene therapy in nonhuman primate models as an avenue to treat Parkinson's disease. Parkinson's disease is characterized by the progressive loss of specific cells of the brain region called the substantia nigra. These cells produce the chemical messenger dopamine.

"When people learn that there are animal models of Parkinson's disease, they always ask, 'What is the best model to study Parkinson's?'" says Emborg, a senior scientist at the WNPRC and in the UW-Madison Department Anatomy. "This is difficult to answer because it depends on what you are trying to study."

Emborg attempts to study the disease with a model that incorporates environmental and aging factors. Her seminal work in gene therapy fostered the delivery of glial derived neurotrophic factors (GDNF) into the substantia nigra of nonhuman primates. The significance of GDNF is its ability to promote dopaminergic neuron survival; and therapies aimed to halt degeneration, protect and sustain dopaminergic cells are needed.

Emborg will attempt to protect

against missing brain function in aged monkeys that have early Parkinsonism using gene therapy for delivery of trophic factors. Patrick Aebischer (Laussane Institute of Technology, Switzerland), Clive Svendsen (WNPRC, Anatomy), James Holden (WNPRC, Medical Physics), Jeff Kordower (Neurology, Rush Presbyterian) Ben Roitberg (Neurosurgery, UIC) and Charles Garrell (WNPRC, Neurosurgery) are collaborators in the gene therapy effort. The Centralized Protocol Implementation team (WNPRC) led by Jacque Mitchen and coordinated by Valerie Joers is intrinsically involved in the procedures, Emborg says. She also recognizes CPI's Karla Potratz and Jessica Vandeleest, as well as Nancy Schultz-Darken, the veterinarians and the rest of the Animal Services staff.

The researchers believe that the knowledge gained from this type of genetic and trophic factor research in nonhuman primates will enable doctors to help patients with Parkinson's disease and other neurodegenerative conditions.

Without hesitation, Emborg says her goal at the Wisconsin

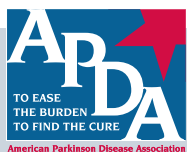
National Primate Research Center is "to help find the cure for Parkinson's."

Emborg transferred to the Primate Center and UW-Madison last September from Chicago. There, she was an assistant professor and led the primate studies at the Research Center for Brain Repair directed by Dr. J. Kordower in the Department of Neurological Sciences, Rush-Presbyterian-St. Luke's Medical Center. Emborg was born in Buenos Aires, Argentina. She obtained her M.D. and later her Ph.D. at the University of Buenos Aires. More biographical information and research background appears on the Michael J. Fox Foundation for Parkinson's Research website. Contact Marina through the Wisconsin Stem Cell Program.

References:

Emborg ME. Evaluation of animal models of Parkinson's disease for neuroprotective strategies. *J. Neurosci. Methods.* 139:121-143. 2004. (Note: This was the journal's most heavily downloaded article in recent issues.)

Moirano J, Emborg M. Nonhuman primate models for testing gene therapy for neurodegenerative disorders. In *Gene Therapy for Neurological Disorders*, Eds. M. During and M. Kaplitt, Elsevier, 2005.



Parkinson's Perspective

is published three times a year for Parkinson's patients, their families, and caregivers. It is produced by the UW Health Movement Disorders Program with the financial support of the American Parkinson Disease Information and Referral Center. If you no longer wish to receive this newsletter, please call 608/263-7991.

Jessica Hahn, editor

Much-Needed Resource Book Published

Many of you have heard about a Wisconsin Parkinson's Disease Resource Book. Well, it is complete. This book covers a wide variety of topics, including attorneys for elderly people, case managers, Lee Silverman Voice Therapists, where to find Medicare information, where to gain respite care, rehabilitation facilities, neuro-ophthalmologists, etc. If you would like to receive one of these books, please notify Jessica Hahn at (608) 263-7991 or hahn@neurology.wisc.edu. Although we are not charging a fee for the resource, if you are in a position to contribute even a modest amount to help defray the cost, it will be most welcome and appreciated. Donations can be made out to University of Wisconsin.

Taking Care of YOU: Powerful Tools for Family Caregiving

The American Parkinson Disease Association Information and Referral Office and the Caring for the Caregiver Program of the Area Agency of Aging of Dane County would like to offer a Powerful Tools class for care providers of Parkinson's patients.

Taking Care of YOU: Powerful Tools for Caregiving is a six-week course designed to empower caregivers with skills to better care for their loved one and themselves. Each session focuses on effective ways to reduce stress; how to communicate feelings, needs and concerns; manage challenging situations; and master difficult caregiving decisions. Each class is two and a half hours long, and respite care is available through the Caring for the Caregiver Program. The cost for this six-week course is just \$10 to help cover the cost for *The Caregiver Handbook*.

If you're interested in attending, contact Jessica Hahn at (608)263-7991 or hahn@neurology.wisc.edu.

Save the Dates

Check out www.apdawi.org for more information or contact Jessica Hahn at 608.263.7991

| | | | |
|---|---------------------------------|--------------------------|--------|
| 1 st Thursdays of the month | Young Parkinson's Support Group | UW Hospital G5/152 | 6-8 pm |
| 2 nd Wednesdays of the month | Support Group | Fitchburg Senior Center | 1-3 pm |
| 3 rd Mondays of the month | Support Group | Baraboo | 2-4 pm |
| 3 rd Thursdays of the month | Support Group | Madison | 7-9 pm |
| 4 th Mondays of the month | Support Group | Sun Prairie | 1-3 pm |
| 4 th Wednesdays of the month | Support Group | Stoughton | 1-3 pm |
| April 15, 2007 | Parkinson's Disease Walk-A-Thon | East Towne Mall, Madison | |

Please help us update our mailing list!!

If you have permanent address change or know of someone who would like to be added to our list, please complete the information below and return to the address shown below.

New Address

Add to your list

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____

Mail to:
Jessica Hahn, Coordinator
600 Highland Avenue
H6/569 CSC
Madison, WI 53792-5132

Questions & Answers

This section is devoted to answering your questions. If you have any questions about Parkinson's care, please send them to Jessica Hahn at hahn@neurology.wisc.edu, or mail them to 600 Highland Avenue, H6/569 CSC, Madison, WI 53792-5132.

Q: Does Alcohol affect Parkinson's Disease? If someone with Parkinson's Disease decides to drink, is there a limit on how much?

A: There are several issues related to this questions

1. Alcohol can interact with other medications, particularly medications that can make patients sleepy. Some patients find that their anti-Parkinson medications such as ropinirole or pramipexole make them sleepy, and this could be worsened by alcohol.
2. Patients with chronic neurological disorders can be sensitive to the effects of alcohol. For example, patients who have difficulty with walking or balance may find that they are particularly sensitive to the effects of alcohol.

Patients should check with their physician and/or pharmacist to be sure that the alcohol is not incompatible with their medications. After receiving this OK, patients should test their sensitivity to alcohol. If any adverse effects are noticed, the patient should avoid alcohol.

Here to Serve YOU!

The American Parkinson Disease Association Information and Referral Office is here to serve you. There is a lot of information available: books that the APDA gives out at no charge to anyone looking for more information; information on support groups around Wisconsin; lists of neurologists who help PD patients; and information on respite care in the Madison area. Our mission is to "find a cure, ease the burden" and that is what we want to do; ease as much of the burden as we can for you. For more information, please contact Jessica Hahn: (608) 263-7991 or hahn@neurology.wisc.edu.

This newsletter is intended for educational purposes only and should not be interpreted as providing medical recommendations. Patients are advised not to change their treatment without the advice and consent of their treating physician. The editor of the newsletter is solely responsible for its content.

UWHealth

A Parkinson's Publication
Movement Disorders Program
600 Highland Avenue
Madison, Wisconsin 53792

place
stamp
here