The Neuropsychiatry of the Parietal Lobe: Clinical Manifestations of Integrated Neural Networks in Everyday Practice

By Eric Hollander, MD

I hope that our readers are enjoying a much deserved summer season, and that all of us can mix meaningful work with some time out for enjoyment of nature, family, and recreation. Whether relaxing at the beach or in the country, we hope that reading this month’s CNS Spectrums may enlighten you to a deeper appreciation of the role of the parietal lobes and related structures in various neuropsychiatric phenomena, especially spatial abilities, consciousness, and body image.

I would like to thank Michael Trimble, MD, FRCP, FRPsych, for guest editing this issue. Also, Dr. Trimble will be launching a new column series called “Brain Regions of Interest” later this year. The basic idea is to highlight specific brain regions or integrated brain networks of interest, and to describe, in a practical fashion, to a general neuropsychiatric audience why these systems are important; how they function; what role they serve; and how their dysfunction results in clinical symptoms and illness.

Neurologists have substantial training and appreciation for the impact of localized lesions on the development of clinical phenomena. Psychiatrists clearly have less training and appreciation of this, and are more focused on interventions that might improve clinical symptoms and functional status. Nevertheless, a concise review of these issues can be valuable for all practitioners.

For example, it is well known that the parietal lobes play a role in spatial functioning. However, it is less well known that specific clinical syndromes are linked to dysfunction of the parietal lobes, and that the function of the parietal lobes can best be understood when viewed as functionally integrated networks with other regions, such as the frontal lobes. Also, the precuneus has been much in the news of late, specifically with regards to its role in consciousness. The precuneus seems to exist in a “default mode” of brain function during the conscious resting state, and is selectively deactivated in various conditions that impair consciousness. It is also known that the parietal lobes play a role in the perception of body image, but it is less well known that the parietal lobes influence both the visual and mental image that we have of our bodies, or how we see ourselves when we view ourselves in a mirror.

Also in this issue, Alzbeta Juven Wetzler, MD, and colleagues report an unusual case of obsessive-compulsive disorder (OCD) sequelae following a suicide attempt, illustrating the relationship between stress and OCD. The authors highlight not only the existence of “posttraumatic obsession” but also the importance of accurate interpretation of suicidal preoccupation leading to the diagnosis of OCD, rather than suicidal ideation secondary to depression.

Finally, Maria C. Rosário, MD, PhD, and colleagues describe a pilot study of escitalopram in OCD. Despite the small sample size and the open-label nature of the trial, the data suggest that escitalopram may be a useful option for patients with OCD. It should be noted, however, that this medication does not have Food and Drug Administration approval for OCD in the United States.

This issue describes specific brain regions that play a role in some of the most fundamental symptoms of human experience, that of consciousness, spatial ability, and body image. It then describes an unusual development of OCD following suicidal trauma, and a pilot study of a non-FDA-approved treatment for such symptoms. Enjoy your summer. CNS
You can prescribe Rozerem for as long as you need to*

Clinical studies show no evidence of potential abuse, dependence, or withdrawal

- **First and only**—nonscheduled prescription insomnia medication...not a controlled substance and can be prescribed for long-term use.

- **First and only**—prescription insomnia medication that targets the normal sleep-wake cycle.

- **First and only**—prescription insomnia medication with no evidence of abuse potential in clinical studies.

- **First and only**—prescription insomnia medication that does not promote sleep by CNS depression.

- **One simple 8-mg dose**

*Rozerem* (ramelteon) is indicated for the treatment of insomnia characterized by difficulty with sleep onset. Rozerem can be prescribed for long-term use.

**Important safety information**

Rozerem should not be used in patients with hypersensitivity to any components of the formulation, severe hepatic impairment, or in combination with fluvoxamine. Failure of insomnia to remit after a reasonable period of time should be medically evaluated, as this may be the result of an unrecognized underlying medical disorder. Hypnotics should be administered with caution to patients exhibiting signs and symptoms of depression. Rozerem has not been studied in patients with severe sleep apnea, severe COPD, or in children or adolescents. The effects in these populations are unknown. Avoid taking Rozerem with alcohol. Rozerem has been associated with decreased testosterone levels and increased prolactin levels. Health professionals should be mindful of any unexplained symptoms possibly associated with such changes in these hormone levels. Rozerem should not be taken with or immediately after a high-fat meal. Rozerem should be taken within 30 minutes before going to bed and activities confined to preparing for bed. The most common adverse events seen with Rozerem that had at least a 2% incidence difference from placebo were somnolence, dizziness, and fatigue.

Please see adjacent Brief Summary of Prescribing Information.

Please visit [www.rozerem.com](http://www.rozerem.com)

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A variety of cognitive and behavior changes have been reported to occur in children and adolescents taking ramelteon. Worsening of depression, including suicide ideation, has been reported in association with the use of hypnotics.

Patients should be instructed to avoid consuming alcoholic beverages while using ROZEREM.

ROZEREM should not be used in combination with fluvoxamine (see PRECAUTIONS: Drug Interactions).

The effects of ramelteon on embryo-fetal development were assessed in a study in rats using a gavage dosing regimen. Evidence of maternal toxicology and fetal teratogenicity was observed at doses greater than 40 mg/kg/day (1,892-times and 45-times higher than the therapeutic exposure to ramelteon and the active metabolite M-11, respectively, at the 1000 mg/kg/day dose level). Female rats exhibited a dose-related increase in the incidence of hepatic adenomas and benign Leydig cell tumors of the testis at dose levels 250 mg/kg/day and hepatic carcinomas at the 1000 mg/kg/day dose level. Female rats exhibited a dose-related increase in hepatic carcinomas at the 1000 mg/kg/day dose level. The no-effect level for hepatic tumors and benign Leydig cell tumors in male rats was 60 mg/kg/day (231 times and 15 times the therapeutic exposure to ramelton and M-11, respectively, at the 1000 mg/kg/day dose level). In the same study, similarly for hepatocellular adenomas, the no-effect level was 60 mg/kg/day (231 times and 15 times the therapeutic exposure to ramelton and M-11, respectively, at the 1000 mg/kg/day dose level).

In a repeat of this study using oral administration of ramelteon at 250 and 40 mg/kg/day, maternal toxicology and fetal teratogenicity were both observed. However, the mean maternal body weight gain was not affected relative to controls. In the same study, maternal liver weights were increased in a dose-related manner, however, there was no effect on implants or embryos. In a repeat of this study using oral administration of ramelteon at 30.5, 60 and 200 mg/kg/day for the same study duration, maternal liver weights were not affected and there were no signs of hepatotoxicity. Instead, there were no effects seen on implantation or embryo viability. The no-effect dose for the incidence of hepatic adenomas at dose levels 50 mg/kg/day and 100 mg/kg/day was not determined.

Several studies indicated that the concentration of the M-4 metabolite formed by the rat liver S9 fraction used in the mutagenesis assay in the mammalian cell gene mutation assay was at least 40% of the concentration of the parent compound. In the bacterial reverse mutation assay, ramelteon did not produce any signals from animal behavioral and biochemical studies in rats and mice. It did not produce any signals from animal behavioral and biochemical studies in rats and mice. In the two-year carcinogenicity study conducted in the Sprague-Dawley rat, daily ramelteon administration at 250 and 40 mg/kg/day increased liver weight in a dose-related manner. In the same study, similar increases in plasma testosterone levels were observed in male rats. In the same study, simultaneous increases in testosterone levels were observed in male rats. In the same study, simultaneous increases in testosterone levels were observed in male rats. In the same study, simultaneous increases in testosterone levels were observed in male rats. In the same study, simultaneous increases in testosterone levels were observed in male rats. In the same study, simultaneous increases in testosterone levels were observed in male rats.

The effects of ramelteon on pre- and post-natal development in the rat were studied in a study conducted in the Sprague-Dawley rat. Daily ramelteon administration at 6, 19, and 60 mg/kg/day increased liver weights in a dose-related manner. In the same study, liver weights were increased in a dose-related manner, however, there was no effect on implants or embryos. In a repeat of this study using oral administration of ramelteon at 30.5, 60 and 200 mg/kg/day for the same study duration, maternal liver weights were not affected and there were no signs of hepatotoxicity. Instead, there were no effects seen on implantation or embryo viability. The no-effect dose for the incidence of hepatic adenomas at dose levels 50 mg/kg/day and 100 mg/kg/day was not determined.

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