

Non-uniform Response to Temozolomide Therapy in a Pituitary Gonadotroph Adenoma

Ayca Ersen, Luis V. Syro, Luis C. Penagos, Humberto Uribe, Bernd W. Scheithauer,
Leon D. Ortiz, Fabio Rotondo, Eva Horvath, Kalman Kovacs

Letter to the Editor - *Can J Neurol Sci.* 2012; 39: 683-685

Slightly acidophilic pituitary adenoma. No major cellular and nuclear pleomorphism is noted. In one portion, severe cellular injury is noted. The tumor cells are shrunken, possessing a dark, chromatin rich nucleus and a narrow rim of chromophobic cytoplasm. There is marked accumulation of connective tissue. Hematoxylin & Eosin stain. Original magnification: 100x (A). The injured small cells in the fibrotic area are LH immunonegative. The surviving areas show cells with conclusive LH immunopositivity. Immunostaining for LH. Original magnification: 100x (B). The majority of the tumor cell nuclei are immunopositive for MGMT. Immunostaining for MGMT. Original magnification: 250x (C). Severe cellular damage is apparent. Electron micrograph. Original magnification: 2500x (D).

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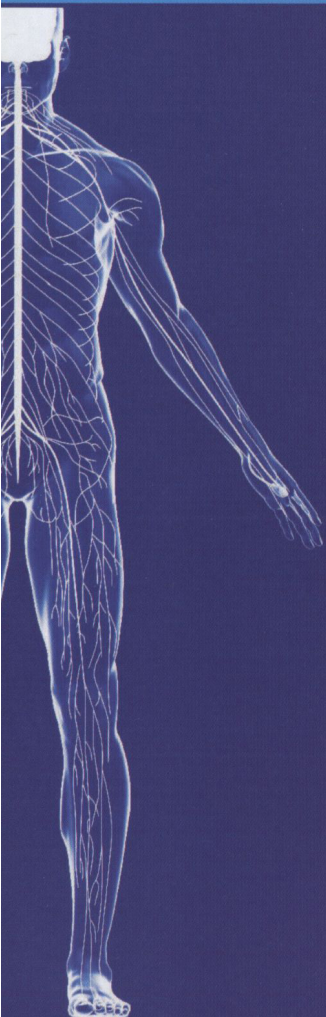
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References: 1. Health Canada. COPAXONE Notice of Compliance. Accessed online at <http://webprod3.hc-sc.gc.ca/noc-ac/info.do?lang=eng&no=3831> 2. Data on file. Periodic Safety Update Report (PSUR), Global Drug Safety & Pharmacovigilance, Teva Pharmaceutical Limited, January 12, 2012.


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In fibromyalgia:

- In a 14 week study, LYRICA demonstrated significant pain reduction as early as week 1 ($p < 0.05$ for all doses). Mean changes in pain scores at the end of the study for LYRICA-treated patients were significantly greater versus placebo (300 mg/day, $n=183$: -1.75, $p=0.0009$; 450 mg/day, $n=190$: -2.03, $p < 0.0001$; 600 mg/day, $n=188$: -2.05, $p < 0.0001$; placebo, $n=184$: -1.04)³
- In another study of 26 weeks' duration of patients who initially responded to LYRICA during a 6-week, open-label phase, 68% of those who continued on their optimized dose ($n=279$) maintained a treatment response versus 39% of those on placebo ($n=287$). The time to loss of therapeutic response was longer in the LYRICA group ($p < 0.0001$)⁴

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- Sustained pain relief (starting at week 2 for LYRICA 150-600 mg/day, $n=141$; $p < 0.05$ vs placebo, $n=65$) was demonstrated throughout a 12 week study in patients with DPN or PHN⁵

Demonstrated effective in relieving pain-related sleep difficulties^{1,6}

In fibromyalgia:

- In a 13 week study, LYRICA reduced overall MOS-Sleep Scale scores significantly more at the end of the study vs. placebo (300 mg/day -19.1, $p=0.0174$; 450 mg/day: -20.41, $p=0.0026$; 600 mg/day: -19.49, $p=0.0101$; placebo: -14.29)⁶

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LYRICA is contraindicated in patients who are hypersensitive to pregabalin or to any ingredient in the formulation or component of the container.

The most commonly observed adverse events ($\geq 5\%$ and twice the rate as that seen with placebo) in the recommended dose range of 150 mg/day to 600 mg/day in PHN and DPN patients were: dizziness (9.0-37.0%), somnolence (6.1-24.7%), peripheral edema (6.1-16.2%), and dry mouth (1.9-14.9%) and were dose related; in spinal cord injury patients: somnolence (41.4%), dizziness (24.3%), asthenia (15.7%), dry mouth (15.7%), edema (12.9%), constipation (12.9%), amnesia (10.0%), myasthenia (8.6%), amblyopia (8.6%), and thinking abnormal (8.6%); in fibromyalgia patients: dizziness (37.5%), somnolence (18.6%), weight gain (10.6%), dry mouth (7.9%), blurred vision (6.7%), and peripheral edema (6.1%). In LYRICA-treated fibromyalgia patients, the most commonly observed dose-related adverse events were: dizziness (22.7-46.5%), somnolence (12.9-20.7%), weight gain (7.6-13.7%), peripheral edema (5.3-10.8%). The most commonly observed adverse events in the PHN, DPN, spinal cord injury and fibromyalgia patients were usually mild to moderate in intensity. Discontinuation rates due to adverse events for LYRICA and placebo, respectively, were 9% and 4% in DPN, 14% and 7% in PHN, 21% and 13% in spinal cord injury, and 20% and 11% in fibromyalgia. There was a dose-dependent increase in rate of discontinuation due to adverse events in fibromyalgia.

There have been post-marketing reports of angioedema in patients, some without reported previous history/episodes, including life-threatening angioedema with respiratory compromise. Caution should be exercised in patients with previous history/episodes of angioedema and in patients who are taking other drugs associated with angioedema.

In clinical trials and in post-marketing experience, there have been reports of patients, with or without previous history, experiencing renal failure alone or in combination with other medications. Caution is advised when prescribing to the elderly or those with any degree of renal impairment.

There have been post-marketing reports of events related to reduced lower gastrointestinal tract function (e.g., intestinal obstruction, paralytic ileus, and constipation) in patients, some without reported previous history/episode(s), during initial/acute and chronic treatment with LYRICA, primarily in combination with other medications that have the potential to produce constipation. Some of these events were considered serious and required hospitalization. In a number of instances, patients were taking opioid analgesics including tramadol. Caution should be exercised when LYRICA and opioid analgesics are used in combination, and measures to prevent constipation may be considered, especially in female patients and elderly as they may be at increased risk of experiencing lower gastrointestinal-related events.

Dosage reduction is required in patients with renal impairment (creatinine clearance <60 mL/min) and in some elderly patients as LYRICA is primarily eliminated by renal excretion.

Please see Prescribing Information for complete Warnings and Precautions, Adverse Reactions, Dosage and Administration and patient selection criteria.

† Please consult Prescribing Information for complete Dosage and Administration instructions.



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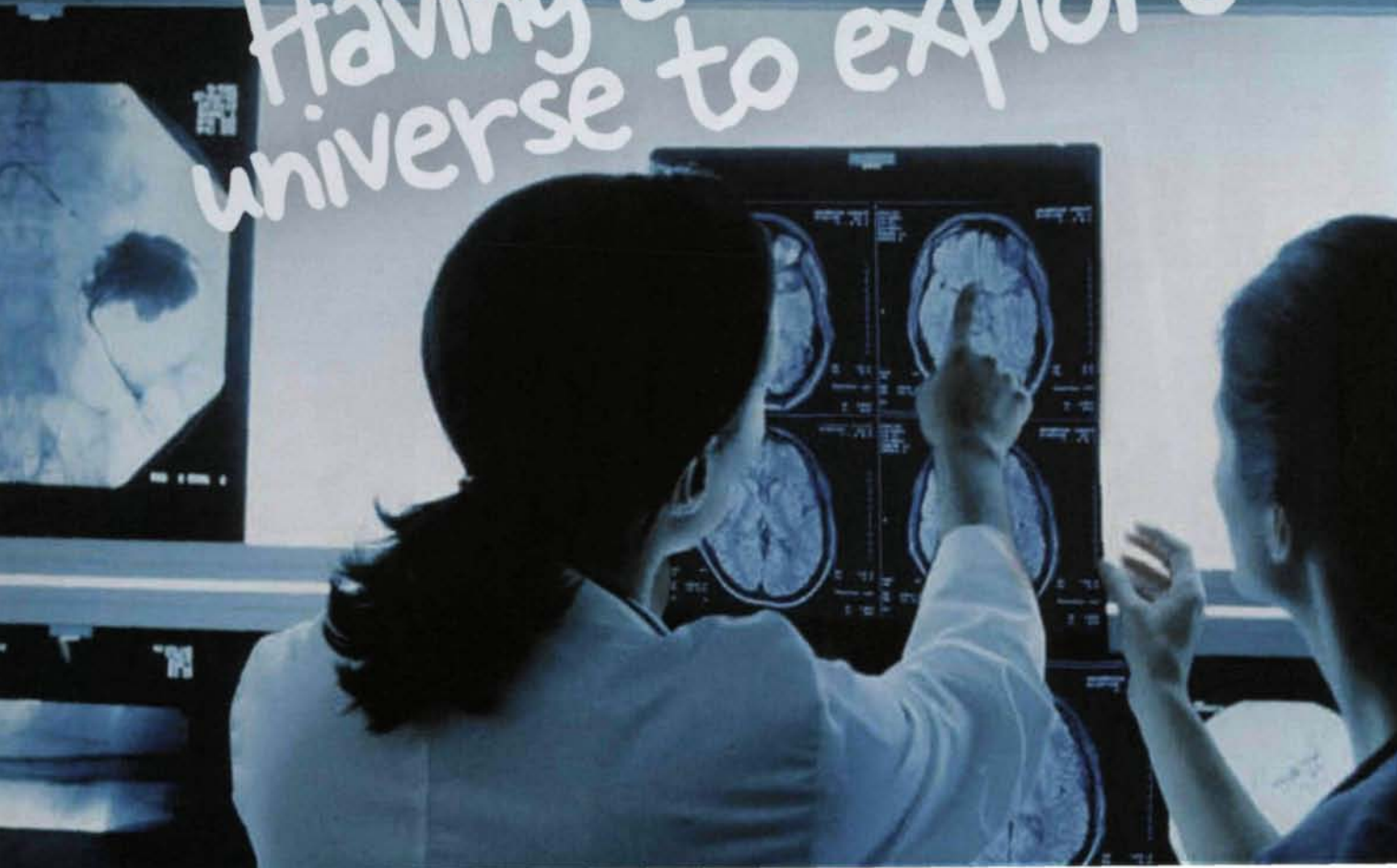
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VIMPAT® (lacosamide) is indicated as adjunctive therapy in the management of partial-onset seizures in adult patients with epilepsy (≥18 years of age) who are not satisfactorily controlled with conventional therapy. The clinical experience with VIMPAT® in elderly patients with epilepsy (≥65 years of age) is limited. Caution should be exercised during dose titration and age-associated decreased renal clearance should be considered in elderly patients. The safety and efficacy of VIMPAT® in pediatric patients (<18 years of age) have not been established and its use in this patient population is not indicated.

VIMPAT® is contraindicated in patients who are hypersensitive to the active substance or to any of the excipients and in patients with a history of, or presence of, second- or third-degree atrioventricular (AV) block.

Second degree or higher AV block has been reported in post-marketing experience. Patients should be made aware of the symptoms of second-degree or higher AV block (e.g. slow or irregular pulse, feeling of lightheadedness and fainting), and told to contact their physician should any of these symptoms occur. VIMPAT® should be used with caution in patients with known conduction problems (e.g. marked first-degree AV block, sick sinus syndrome without pacemaker), or with a history of severe cardiac disease such as myocardial ischemia or heart failure. In such patients, obtaining an ECG before beginning VIMPAT®, and after VIMPAT® is titrated to steady-state, is recommended. Caution should especially be exerted when treating elderly patients as they may be at increased risk of cardiac disorder or when VIMPAT® is given with other drugs that prolong the

PR interval (e.g. carbamazepine, pregabalin, lamotrigine, beta-blockers, and class I antiarrhythmic drugs), as further PR prolongation is possible. In clinical trials of healthy subjects and patients with epilepsy, VIMPAT® treatment was associated with PR interval prolongation in a dose-dependent manner. VIMPAT® administration may predispose to atrial arrhythmias (atrial fibrillation or flutter), especially in patients with diabetic neuropathy and/or cardiovascular disease. Patients should be made aware of the symptoms of atrial fibrillation and flutter (e.g. palpitations, rapid or irregular pulse, shortness of breath) and told to contact their physician should any of these symptoms occur. Atrial fibrillation and flutter have been reported in open-label epilepsy trials and in postmarketing experience.

Multigorgan hypersensitivity reactions (also known as Drug Rash with Eosinophilia and Systemic Symptoms, or DRESS), Stevens-Johnson Syndrome (SJS) and Toxic Epidermal Necrolysis (TEN) have been reported with anticonvulsants. If any of these hypersensitivity reactions are suspected, VIMPAT® should be discontinued and alternative treatment started.

Treatment with VIMPAT® has been associated with dizziness and ataxia, which could increase the occurrence of accidental injury or falls. Accordingly, patients should be advised not to drive a car or to operate other complex machinery or perform hazardous tasks until they are familiar with the effects of VIMPAT® on their ability to perform such activities.

In controlled trials in patients with partial-onset seizures, VIMPAT® treatment was associated with vision-related adverse events such as blurred vision and diplopia. Patients should be informed



When seizure control is still an issue for your patient

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Efficacy in patients inadequately controlled on 1 to 3 AEDs*†1

- ◆ Significant median **36-39% reduction in seizure frequency** per 28 days from baseline to maintenance phase¹
 - ◆ VIMPAT[®] 400 mg/day vs. placebo: Ben-menachem, *et al.* (39% vs. 10%, $p \leq 0.01$); Chung, *et al.* (37.3% vs. 20.8%, $p \leq 0.01$); Halász, *et al.* (36.4% vs. 20.5%, $p \leq 0.05$)*1

Generally well tolerated when added to common concomitant therapy

- ◆ Some of the most frequently reported **adverse reactions** with VIMPAT[®] 400 mg/day were dizziness (30%), nausea (11%), and vision-related events, including diplopia (10%) and blurred vision (9%)

The recommended starting dose for VIMPAT[®] is 50 mg twice a day which should be increased to an initial therapeutic dose of 100 mg twice a day after one week. Depending on patient response and tolerability, the maintenance dose of VIMPAT[®] can be increased by 50 mg twice daily every week, to a **maximum recommended dose of 400 mg/day**.¹

Please consult product monograph for complete dosing and administration instructions.

POWER for added control.

that if visual disturbances occur, they should notify their physician promptly. If visual disturbance persists, further assessment, including dose reduction and possible discontinuation of VIMPAT[®], should be considered.

More frequent assessments should be considered for patients with known vision-related issues or those who are already routinely monitored for ocular conditions.

Suicidal ideation and behaviour have been reported in patients treated with antiepileptic agents in several indications. All patients treated with antiepileptic drugs, irrespective of indication, should be monitored for signs of suicidal ideation and behaviour and appropriate treatment should be considered. Patients (and caregivers of patients) should be advised to seek medical advice should signs of suicidal ideation or behaviour emerge.

There are no studies with VIMPAT[®] in pregnant women. Since the potential risk for humans is unknown, VIMPAT[®] should not be used during pregnancy unless the benefit to the mother clearly outweighs the potential risk to the foetus. It is unknown whether VIMPAT[®] is excreted in human breast milk. Because many drugs are excreted into human milk, a decision should be made whether to discontinue nursing or to discontinue VIMPAT[®], taking into account the importance of the drug to the mother.

As with all antiepileptic drugs, VIMPAT[®] should be withdrawn gradually (over a minimum of 1 week) to minimize the potential of increased seizure frequency.

In controlled clinical trials in patients with partial-onset seizures, some of the most frequently

reported adverse reactions with VIMPAT[®] treatment were dizziness (16% and 30% for 200 mg and 400 mg treatment groups, respectively, vs. 8% placebo), nausea (7% and 11% vs. 4%), and vision related events [diplopia (6% and 10% vs. 2%) and blurred vision (2% and 9% vs. 3%)]. They were dose-related and usually mild to moderate in intensity. The adverse events most commonly leading to discontinuation were dizziness, coordination abnormal, vomiting, diplopia, nausea, vertigo, and vision blurred.

Please see the VIMPAT[®] Product Monograph for full prescribing information.

* 3 randomized, double-blind, placebo-controlled, multicentre trials studying VIMPAT[®] (lacosamide) as adjunctive therapy in adult patients with POS with or without secondary generalization. In the studies, patients were to have been taking a stable dosage regimen of one to three AEDs, with or without vagal nerve stimulation in the 4 weeks before enrollment and during the baseline period. Following the 8-week baseline phase, subjects were randomized and up-titrated by initiating treatment at 100 mg/day, and increased in weekly increments of 100 mg/day to the target dose. The titration phase lasted 4-6 weeks. Patients then entered a 12-week maintenance phase period.^{1,2,4}

† AED=antiepileptic drug

References: 1. VIMPAT[®] Product Monograph, UCB Canada Inc., October 6, 2011. 2. Ben-Menachem E, Biton V, Juhász D, *et al.* Efficacy and safety of oral lacosamide as adjunctive therapy in adults with partial-onset seizures. *Epilepsia* 2007; 48(7):1308-1317. 3. Chung S, Sperling MR, Biton V *et al.* Lacosamide as adjunctive therapy for partial onset seizures: A randomized controlled trial. *Epilepsia* 2010; 51(6):958-967. 4. Halász P, Kóvács R, Mazurkiewicz-Beldzińska M, *et al.* Adjunctive lacosamide for partial-onset seizures: Efficacy and safety results from a randomized controlled trial. *Epilepsia* 2009; 50(3):443-453.



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The Canadian Neurological Sciences Federation would like to graciously acknowledge and thank the following for their commitment and participation in this year's 47th Annual Congress.

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