## Glucose Tolerance Tests Urged for All With PCOS

BY ROBERT FINN San Francisco Bureau

ecause of their increased risk of developing impaired glucose tolerance and type 2 diabetes, all women with polycystic ovary syndrome should be screened with a 2-hour oral glucose tolerance test, and that test should be repeated every 2 years, according to a statement from the Androgen Excess Society.

The position statement was developed

by an expert multidisciplinary panel from the Medical College of Virginia, Virginia Commonwealth University, Richmond, which conducted a systematic review of the published, peer-reviewed medical literature on the prevalence and risk factors for impaired glucose tolerance in women with polycystic ovary syndrome (J. Clin. Endocrinol. Metab. 2007;92:4546-56).

The recommendation for a full oral glucose tolerance test (OGTT) for all patients with polycystic ovary syndrome (PCOS)

goes beyond screening recommendations issued by other professional organizations. Most recommend it only in obese women with PCOS or those with a family history of type 2 diabetes or insulin resistance.

The panel focused on studies indicating that both lean and obese women with PCOS are at increased risk of developing impaired glucose tolerance and diabetes. It also noted that a number of studies show that a finding of impaired fasting glucose is not a useful substitute for an OGTT, because about a third of individuals with type 2 diabetes have normal fasting glucose. Furthermore, impaired glucose tolerance, but not impaired fasting glucose, is a strong predictor of cardiovascular disease and premature mortality.

'The position statement makes a valuable contribution to the health care of women with PCOS by recognizing its strong association with insulin resistance and type 2 diabetes," Dr. Rhoda H. Cobin said in an interview. Dr. Cobin, a past pres-

LYRICA® (PREGABALIN) CAPSULES® RIFE SUMMARY. For full n scribing information, see package insert INDICATIONS AND USAGE INDICAL LUNS AND GONGE LYRICA is indicated for: Management of neuropathic pain associated with diabetic peripheral neuropathy Management of postherpetic neuralgia Adjunctive therapy for adult patients with partial onset seizures Management of fibromyalgia

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 CONTRAINDICATIONS
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CONTANUNCATIONS
URICla is contrainedicated in patients with known hypersensitivity to pregabalin or any of its components.
WARNES AND PRECATIONS
Angioedem There have been postmarketing reports of angioedema in patients during initial and chronic treatment with IVRICA Specific symptoms included swelling of the face, mouth (torgue, lips, and guns), and neck (threat and anym). There were reports of if itervitenting angioedem anyther seguritary compromise requiring emergency treatment. LVRICA should be discontinued immediately in patients with brees symptoms. Causal of angioedems. In againstance of the presenting IVRICA to patients who have had a previous episode of angioedema. In addition, patients who are taking other drug sexocited with ingestimation patients with these symptoms. Causal whereing LVRICA should be discontinued immediately in patients with patients with these symptoms. Causal without and the adverse reactions included skin referes, blistes, lives, rash, dynene, and vinezing. LVRICA should be discontinued immediately in patients with gate the should be adverse reaction in LVRICA to adverse reactions included skin referes, blistes, lives, rash, dynene, and vinezing. LVRICA should be discontinued immediately in patients with patient and the or photopheral vascuand faces. The should be withdrawn gradually to minimize the potential of increased seizure frequency in adverse matching. Explane LVRICA to adverse reaction to thread in adverse reaction In these patients, visual acuity was reduced in 7% of patients treated with LYRICA, and 5% of placebo-treated patients. Visual field changes were detected in 13% of LYRICA-treated, and 12% of placebo-treated patients. Funduscopic changes were observed in 2% of LYRICA-treated, and 2% of placebo-treated patients. Although the clinical significance of the ophthalmologic findings is unknown, patients should be informed that if changes in vision occur, they should notify their physicain. If visual disturbance persists, further assessment should be considered. More frequent assessment should be considered for patients who are already routinely monitored for ocular conditions [see Patient Counseling Information]. Creatine Kinase Elevations LYRICA treatment was associated with creatine kinase elevations. Mean changes in creatine kinase from baseline to the maximum value were 60 U/L for LYRICA-treated patients and 28 U/L for the placebo patients. had a value of creatine kinase at least three times the upper limit of normal. Three LYRICA-treated subjects had

events reported as rhabdomyolysis in premarketing clinical trials. The relationship between these myopathy events and LYRICA is not completely understood because the cases had documented factors that may have caused or contributed to these events. Prescribers should instruct patients to promptly report unexplained muscle pain, tenderness, or weakness, particularly if these muscle symptoms are accompanied by malaise of even. LYRICA treatment should be discontinued if myopathy is diagnosed or suspected or if markedly elevated creatine kinase levels occur. **Decreased Platelet Count** LYRICA treatment was associated with a decrease in platelet count. LYRICA-treated subjects experienced a mean maximal decrease in platelet count of 20 x 10<sup>5</sup>/µL. Compared to 11 x 10<sup>5</sup>/µL platelets experienced a potentially clinically significant decrease in platelet defined as 20% below baseline value and <br/>150 x 10<sup>5</sup>/µL. A single LYRICA treated subject developed severe thrombocytopenia with a platelet count to 20 x 10<sup>5</sup>/µL. A single LYRICA treated subject developed severe thrombocytopenia with a platelet count to 21 x 10<sup>5</sup>/µL. A single LYRICA treated subject developed severe thrombocytopenia with a platelet count to 21 x 10<sup>5</sup>/µL. A single LYRICA treated subject developed severe thrombocytopenia with a platelet count to 21 x 10<sup>5</sup>/µL. A single LYRICA treated subject developed severe was not associated with na increase 2300 mg/day. This mean change difference was not associated with a increase 2300 mg/day. This mean change difference was not associated with a finate 2300 mg/day. This mean change difference was not associated with a prolongation. In analyses of clinical trial EVG add is of second or third degree AV block. Subgroup analyses did not identify an increased risk of PH prolongation in patients taking other PR prolonging medications. However, these analyses cannot be considered definitive because of the limited number of patients in these categories. **AVERSE REACTIONS** ADVERSE REACTIONS

analyses cannot be considered definitive because of the limited number of patients in these categories. **ADVERSE REACTIONS Clinical Trials Experience** Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice. In all controlled and uncontrolled trials or another drug and may not reflect the rates observed in practice. In all controlled and uncontrolled trials across various patient populations during the premarketing development of LYRICA, more than 10,000 patients were treated for 1 year or longer, and over 1400 patients were treated for at least 2 years. Adverse Reactions Most Commonly Leading to Discontinuation in All Premarketing Controlled Clinical Studies In premarketing controlled trials of all populations combined, 14% of patients treated with LYRICA and 7% of patients treated with placebo discontinued prematurely due to adverse reactions. In the LYRICA treatment group, the adverse reactions most frequently leading to discontinuation from controlled trials more frequently in the LYRICA proug compared to the placebo group were ataxia, confusion, asthenia, thinking ahnormal, blurred vision, incoordination, and peripheral edema (1% each). Most Common Adverse Reactions in All Premarketing Controlled Clinical Studies In premarketing controlled trials of all patient populations combined, dizness, somnolence, dry mouth, edema, blurred vision, weight gain, and "thinking ahnormal" (primarily difficulty with concentration/attention) were more commonly reported by subjects treated with PIROLA than by subjects treated with blacebo (25% and twice the rate of that seen in placebo). <u>Controlled Studies with</u> Neuropathic Pain Associated with Dilabetic. Peripheral. Neuropathy Adverse Reactions inceading the PIROLA than by Discontinuation in clinical trials in patients with neuropathic Pain associa y due to adverse reactions. In the LYRICA treatment group, the most common reasons for titon due to adverse reactions were dizziness (3%) and somnolence (2%). In comparison, <1% ascontinuation due to adverse reactions were dizziness (3%) and somnolence (2%). In comparison, <1% of placebo patients withdrew due to diziness and somnolence. Other reasons for discontinuation from the trials, occurring with greater frequency in the LYRICA group than in the placebo group, were asthenia, confusion, and peripheral edema. Each of these events led to withdrawal in approximately 1% of patients. *Most Common Adverse Reactions* Table 1 lists all adverse reactions, regardless of causality, occurring in 21% of patients with neuropathic pain associated with diabetic neuropathy in the combined LYRICA group for which the incidence was greater in this combined LYRICA group than in the placebo group. A majority of pregabalin-treated patients in clinical studies had adverse reactions with a maximum intensity of "mild" or "moderate".

Table 1 Treatment-emergent adverse reaction incidence in controlled trials in Neuropathic Pain Associated with Diabetic Peripheral Neuropathy (Events in at least 1% of all LYRICA-treated patients and at least numerically more in all LYRICA than in the placebo group)

Body System	75 mg/d [N=77]	150 mg/d [N=212]	300 mg/d [N=321]	600 mg/d [N=369]	All PGB* [N=979]	Placebo [N=459]
Preferred term	[N=77] %	[N=212] %	[N=321] %	[N=309] %	[N=979] %	[14=409] %
	%	%	%	%	%	%
Body as a whole						
Asthenia	4	2	4	7	5	2
Accidental injury	5	2	2	6	4	3
Back pain	0	2	1	2	2	0
Chest pain	4	1	1	2	2	1
Face edema	0	1	1	2	1	0
igestive system						
Dry mouth	3	2	5	7	5	1
Constipation	0	2	4	6	4	2
Flatulence	3	0	2	3	2	1
Aetabolic and						
utritional disord	ers					
Peripheral edema	4	6	9	12	9	2
Weight gain	Ó	4	4	6	4	õ
Edema	0		4	2		ŏ
Hypoglycemia	1	2	2	ī	2	ĭ
lervous system		-	-		-	
Dizziness	8	9	23	29	21	5
Somnolence	4	6	13	16	12	3
Neuropathy	9	2	2	5	4	3
Ataxia	6	ī	2	4		ĭ
Vertigo	1	2	2	4	3	1
Confusion	N	1	2		2	1
Euphoria	0	ò	2 2 2 3	2	3 2 2 2 2 2	ó
Incoordination	1	Ő	2	2	2	õ
Thinking abnormal		0	1	3	2	Ő
Tremor	1	1	1	3 2 3 2 3	1	ŏ
Abnormal gait	1	ò	1	3	1	ŏ
Amnesia	3	1	Ó	2	1	Ö
Nervousness	0	1	1	1	1	0
lespiratory syste						U
Dyspnea	3	0	2	2	2	1
pecial senses	J	U	2	2	Z	1
Blurry vision <sup>a</sup>	3	1	3	6	4	2
Abnormal vision	1	0	1	1	4	0
PGR: pregabalin	1	U	1	1	I	U

ident of both the American College of Endocrinology and the American Association of Clinical Endocrinologists (AACE), chaired the panel that developed the AACE's 2005 PCOS position statement (Endocr. Pract. 2005;11:126-34).

However, an oral glucose tolerance test may not be feasible in all clinical settings, which is why "the AACE statement did not make it mandatory but, based on the same evidence, settled for the directive to look for type 2 diabetes, impaired fasting glucose, or impaired glucose tolerance in all PCOS women, using whatever method possible," Dr. Cobin said. "I [agree] that not only obese women should be tested, but that lean PCOS women may have insulin resistance and diabetes, while obesity exacerbates the situation.

The position statement from the Androgen Excess Society (AES) notes that several AES board members disagreed with the recommendation to screen all women with PCOS with an OGTT. The minority report says evidence on the risk of impaired glucose tolerance in lean PCOS women is "limited and still emerging." Those board members recommended an OGTT only in PCOS patients whose body mass index was  $30 \text{ kg/m}^2$  or more or who had at least one additional risk factor for diabetes including advanced age, family history of diabetes, or

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a personal history of gestational diabetes. The AES statement makes several rec-

ommendations on the prevention, screening, and treatment of impaired glucose tolerance in patients with PCOS. It suggested the OGTT be repeated once every 2 years or even earlier if the patient has additional risk factors. Patients with impaired glucose tolerance should be screened annually for the development of diabetes.

Intensive lifestyle modification and weight loss should be the mainstay of treatment for all patients with PCOS and impaired glucose tolerance. Insulin-sensitizing agents such as metformin and the thiazolidinediones should also be considered.

The panel also recommended that adolescents with PCOS should, like their adult counterparts, be screened with an OGTT every 2 years and should be treated with intensive lifestyle modification, including diet and moderate exercise. Insulin-sensitizing agents should be considered, but should not be mandated until there have been well-designed, randomized controlled trials demonstrating their efficacy.

Dr. Cobin said she saw few arguments against the OGTT recommendations. "The only negatives are inconvenience and [to a small degree] cost [but] the cost factor is far outweighed by the cost of undiagnosed insulin resistance and diabetes." 

## inking abnormal primarily consists of events related to difficulty with concentration/attention but also cludes events related to cognition and language problems and slowed thinking. \*Investigator term; summary level term is amblyopia. varaa Paantiana Laadin

<u>Controlled Studies in Postherpetic Neuralgia</u> Adverse Reactions Leading to Discontinuation In clinica	al
trials in patients with postherpetic neuralgia, 14% of patients treated with LYRICA and 7% of patients treated with	
placebo discontinued prematurely due to adverse reactions. In the LYRICA treatment group, the most commo	
reasons for discontinuation due to adverse reactions were dizziness (4%) and somnolence (3%). In comparison	n,
less than 1% of placebo patients withdrew due to dizziness and somnolence. Other reasons for discontinuation	n
from the trials, occurring in greater frequency in the LYRICA group than in the placebo group, were confusion (2%	o),
as well as peripheral edema, asthenia, ataxia, and abnormal gait (1% each). Most Common Adverse Reaction	1S
Table 2 lists all adverse reactions, regardless of causality, occurring in ≥1% of patients with neuropathic pai	in
associated with postherpetic neuralgia in the combined LYRICA group for which the incidence was greater in th	is
combined LYRICA group than in the placebo group. In addition, an event is included, even if the incidence in the a	all
LYRICA group is not greater than in the placebo group, if the incidence of the event in the 600 mg/day group	is
more than twice that in the placebo group. A majority of pregabalin-treated patients in clinical studies had advers	se
reactions with a maximum intensity of "mild" or "moderate".	

Table 2 Treatment-emergent adverse event incidence in controlled trials in Neuropathic Pain
Associated with Postherpetic Neuralgia (Events in at least 1% of all LYRICA-treated patients and
at least numerically more in all pregabalin than in the placebo group)

Body System - Preferred term	75 mg/d [N=84] %	150 mg/d [N=302] %	300 mg/d [N=312] %	600 mg/d [N=154] %	All PGB* [N=852] %	Placebo [N=398] %
Body as a whole						
Infection	14	8	6	3	7	4
Headache	5	9	5	8	7	5
Pain	5	4		5	5	4
Accidental injury	4	3	5 3	5	3	2
Flu syndrome	1	2	2	ĩ	2	1
Face edema	Ó	2	ī	3	2	1
Digestive system	0	-		0	-	
Dry mouth	7	7	6	15	8	3
Constipation	4	5	5	5	5	2
Flatulence	2	1	2	3	2	ī
Vomiting	1	1	3	3	2	1
Metabolic and			0	0	-	
nutritional disorde	rs					
Peripheral edema	0	8	16	16	12	4
Weight gain	1	2	5	7	4	Ó
Edema	Ó	1	2	6	2	1
Musculoskeletal	0		-	0	-	
system						
Myasthenia	1	1	1	1	1	0
Nervous system						
Dizziness	11	18	31	37	26	9
Somnolence	8	12	18	25	16	5
Ataxia	1	2	5	9	5	1
Abnormal gait	0	2	4	8	4	1
Confusion	1	2	3	7	3	0
Thinking abnormal*	0	2 2 2	1	6	2	2
Incoordination	2	2	1	3	2	0
Amnesia	0	1	1	4	2	0
Speech disorder	0	0	1	3	1	0
Respiratory system	1					
Bronchitis	0	1	1	3	1	1
Special senses						
Blurry vision <sup>a</sup>	1	5	5	9	5	3
Diplopia	0	2	2	4	2	0
Abnormal vision	0	1	2	5	2	0
Eye disorder	0	1	1	5 2	1	0
Urogenital system						
Urinary						
incontinence	0	1	1	2	1	0

PGB: progabalin Thinking abnormal primarily consists of events related to difficulty with concentration/attention but also includes events related to cognition and language problems and slowed thinking. Investigator term; summary level term is amblyopia.

Includes events feated to Confinitely featern is amblyopia. <u>Controlled Add-On Studies in Adjunctive. Therapy for Adult Patients with Partial Onset Seizures</u> <u>Adverse Reactions Leading to Discontinuation Approximately 15% of patients receiving LYRICA and</u> 6% of patients receiving placebo in add-on epilepsy trials discontinued prematurely due to adverse reactions. In the LYRICA treatment group, the adverse reactions most frequently leading to discontinuation were dizziness (6%), latavia (4%), and sommolence (3%). In comparison, <1% of patients in the placebo group withdrew due to each of these events. Other adverse reactions and the least twice as frequently compared to the placebo group were asthenia, diplopia, blurred vision, thinking abnormal, nausea, tremor, vertigo, headache, and confusion (which each led to withdrawal in 2% or less of patients]. *Most Common Adverse Reactions* Table 31 lists all dose-related adverse reactions or the elacebo and 150 mg/day groups. In these studies, 750 patients received LYRICA and 294 patients received placebo for up to 12 weeks. Because patients were also treated with 1 to 3 other AEDs, it is not possible to determine whether the following adverse reactions can be ascribed to LYRICA alone, or the combination of LYRICA and other AEDs. A majority of megabalin-treated patients in clinical studies had adverse reactions with a maximum intensity of "mid" or "moderate".

Table 3 Dose-related treatment-emergent adverse reaction incidence in controlled trials in adjunctive therapy for adult patients with partial onset seizures (Events in at least 2% of all LYRICA-treated patients and the adverse reaction in the 600 mg/day group was >2% the rate in both the placebo and 150 mg/day groups)

Body System - Preferred term	150 mg/d [N=185] %	300 mg/d [N=90] %	600 mg/d [N=395] %	All PGB* [N=670] <sup>†</sup> %	Placebo [N=294] %	Let Tre <b>Psy</b> Eur
Body as a whole						Cor
Accidental injury	7	11	10	9	5	An
Pain	3	2	5	4	3	Dis

estive system					
reased appetite	2	3	6	5	1
mouth	1	2	6	4	1
nstipation	1	1	7	4	2
abolic and					
itional disorders					
ight gain	5	7	16	12	1
ipheral edema	3	3	6	5	2
vous system					
ziness	18	31	38	32	11
nnolence	11	18	28	22	11
ixia	6	10	20	15	4
mor	3	7	11	8	4
nking abnormal‡	4	8	9	8	2
nesia	3	2	6	5	2
ech disorder	1	2 3	7	5	1
pordination	1	3	6	4	1
normal gait	1	3	5	4	0
tching	0	4	5	4	1
nfusion	1	2	5	4	2
oclonus	1	0	4	2	0
cial senses					
rred vision <sup>5</sup>	5	8	12	10	4
lopia	5	7	12	9	4
normal vision	3	1	5	4	1
B: pregabalin					
ludes patients who n	eceived the 50	ma dose in Study	F1 (included in full )	prescribing informat	tion).

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Investigator term; summary level term is amblyopia. Controlled Studies with Fibromyalgia Adverse Reactions Leading to Discontinuation In clinical trials of patients treated with placebo discontinued prematurely due to adverse reactions. In the pregabalin treatment group, the most common reasons for discontinuation due to adverse reactions were diziness (6%) and somolence (3%). In comparison, <1% of placebo-treated patients with diverge treated viting the pregabalin treatment group, the most common reasons for discontinuation due to adverse reactions were diziness (6%) and somolence (3%). In comparison, <1% of placebo-treated patients withdrew due to diziness and somnolence Other reasons for discontinuation from the trials, occurring with greater frequency in the pregabalin treatment group than in the placebo treatment group, were fatigue, headache balance disorder, and weight increased. Each of these adverse reactions led to withdrawal in approximately 1% of patients. Most Common Adverse Reactions Table 4 lists all adverse reactions, regardless of causality, occurring in 22% of patients with fibromyalgia in the 'all pregabalin' treatment group for which the incidence was greater than in the placebo treatment group. A majority of pregabalin-treated patients in clinical studies experienced adverse reactions with a maximum intensity of 'mild' or 'moderate'.</p> Table 4 Treatment-er ment adverse reaction incidence in controlled trials in Fibr

Class	150 mg/d [N=132]	300 mg/d [N=502]	450 mg/d [N=505]	600 mg/d [N=378]	All PGB* [N=1517]	Placebo [N=505]	
<ul> <li>Preferred term</li> </ul>	%	%	%	%	%	%	
Ear and Labyrint							
Vertigo	2	2	2	1	2	0	
Eye Disorders	0	-	-	40	0		
Vision blurred	8.	7	7	12	8	1	
Gastrointestinal			0	0	0	0	
Dry mouth	7	6	9	9	8	2	
Constipation	4	4	7	10	7	2	
Vomiting	2	3	3	2	3	2	
Flatulence	1	1	2	2	2	1	
Abdominal distens		2	2	2	2	1	
General Disorde			Site Conditi		_		
Fatigue	5	7	6	8	7	4	
Edema peripheral		5	6	9	6	2	
Chest pain	2	1	1	2	2	1	
Feeling abnormal	1	3	2	2	2	0	
Edema	1	2	1	2	2	1	
Feeling drunk	1	2	1	2	2	0	
Infections and In	festation	s					
Sinusitis	4	5	7	5	5	4	
Investigations							
Weight increased	8	10	10	14	11	2	
Metabolism and	Nutrition	Disorders					
Increased appetit	e 4	3	5	7	5	1	
Fluid retention	2	3	3	2	2	1	
Musculoskeletal	and Con	nective Tiss	ue Disorders	-	-		
Arthralgia	4	3	3	6	4	2	
Muscle spasms	2	4	4	4	4	2	
Back pain	2	3	4	3	3	3	
Nervous System			·	0	0	0	
Dizziness	23	31	43	45	38	9	
Somnolence	13	18	22	22	20	4	
Headache	11	12	14	10	12	12	
Disturbance in	4	4	6	6	5	1	
attention	4	4	U	U	J		
Balance disorder	2	3	6	9	5	0	
Memory impairm		3	4	4	3	0	
Coordination abnor		1	2	2	2	1	
Hypoaesthesia	111al 2 2	2	2	2	2	1	
	2	2	3	2		0	
Lethargy	2	2	3	2	2	0	
Tremor	0	I	3	Z	Z	U	
Psychiatric Diso							
Euphoric Mood	2	5	6	7	6	1	
Confusional state	0	2	3	4	3	0	