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A Long-term Experience of Monotherapy in a Tertiary Epilepsy Center: Comparison between Oxcarbazepine and Levetiracetam

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뇌신경과학교실

강봉수

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지도 교수 이 상 건

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위 원 장 _____ 정 기 영 (인)
부위원장 _____ 이 상 건 (인)
위 원 _____ 유 경 상 (인)

Abstract

A Long-term Experience of Monotherapy in a Tertiary Epilepsy Center: Comparison between Oxcarbazepine and Levetiracetam

Bong Su Kang

Department of Medicine

College of Medicine

Seoul National University

Introduction: To evaluate and compare the long-term efficacy and safety of oxcarbazepine (OCB) and levetiracetam (LEV) based on a large population of patients at a tertiary epilepsy center.

Methods: All patients who were using OCB or LEV at the Seoul National University Hospital between January 2007 and March 2009 were recruited. Patients who had received brain surgery for seizure control or who had associated progressive disease were excluded from this study. The electronic medical records of these patients were reviewed retrospectively.

Results: A total of 307 patients were recruited. One hundred fifty-eight of the 177 patients treated with OCB and 58 of the 130 patients treated with LEV had localization-related epilepsy (LRE). The mean duration of follow-up of the OCB group was longer than that of the LEV group. In the LRE subgroup, 86 patients (54.4%) with OCB and 36 patients (52.9%) with LEV remained seizure free during the follow-up period ($P = 0.837$). LEV was also effective for juvenile myoclonic epilepsy (57.1% seizure-free rate) and epilepsy with generalized tonic–clonic seizure (62.5% seizure-free rate). In the LRE subgroup, the baseline seizure frequency was inversely correlated with seizure-free outcome. The 3-year retention rates in patients treated with OCB and LEV were not significantly different (81.4% vs 72.1%; $P = 0.781$). General weakness (11.9% vs 4.6%; $P = 0.027$) and skin rash (4.0% vs 0%; $P = 0.022$) were more frequent in the OCB group, whereas irritability (0.6% vs 33.8%; $P < 0.001$) was more frequent in the LEV group. The baseline seizure frequency, dose of medication, and dose-escalation rate to the maximum dosage were not associated with any adverse events.

Conclusions: OCB and LEV were effective and safe as a monotherapy for partial epilepsy. LEV was also effective for the treatment of generalized epilepsy. The retention rate of each drug was well maintained up to 3 years. Skin rash was more frequent in the OCB group and irritability was more frequent in the LEV group.

Keywords: Oxcarbazepine, levetiracetam, long-term experience,

monotherapy, epilepsy

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Contents

I. Introduction

Epilepsy is a common neurological disorder that affects 1% to 2% of the global population across all age groups. The aim of epilepsy treatment is to achieve complete seizure control without causing any adverse events associated with disabilities. Although various antiepileptic drugs (AEDs) have been developed in the past few decades, 20%–30% of patients may still fail to achieve seizure remission (1).

Oxcarbazepine (OCB), one of the new AEDs, has similar chemical properties to carbamazepine. OCB monotherapy has been shown to provide effective seizure control in localization-related epilepsy (LRE), similar to first-line AEDs such as carbamazepine (2) and phenytoin (3). OCB is also generally well tolerated as a monotherapy in adults, and is associated with a low incidence of serious adverse events (4, 5).

Levetiracetam (LEV) is a new AED with a novel mechanism of action. It binds to and modulates the synaptic vesicle protein 2A (6). The efficacy and tolerability of LEV as a monotherapy have been demonstrated in adults with newly diagnosed LRE or generalized epilepsy (GE; not inferior to those of carbamazepine) (7), in children aged 4–16 years with newly diagnosed LRE or GE (8), and in children aged 5–13 years with childhood absence epilepsy or juvenile absence epilepsy (9).

Although OCB or LEV is used widely as a monotherapy for epilepsy, the data available are not sufficient to compare the efficacy and tolerability of these two AEDs. In addition, it is difficult to generalize the findings from previous reports to real-life clinical situations because the inclusion and

exclusion criteria of previous studies were defined strictly. Therefore, we evaluated the long-term efficacy and safety of OCB and LEV as a monotherapy based on a large population of patients at a tertiary epilepsy center. The aim of this study was to compare the long-term efficacy of OCB and LEV, as well as their retention rates and adverse events in clinical practice.

II. Materials and methods

We screened the computerized database of the Seoul National University Hospital from January 2007 to March 2009, and recruited into the study all adult patients who had been treated with OCB or LEV as a monotherapy. Patients who underwent brain surgery for seizure control or who had associated progressive diseases were excluded from this study.

The medical records were reviewed regarding variables that included age, sex, epilepsy syndrome, baseline seizure frequency, type of treatment, efficacy of treatment, the reason for discontinuation, and adverse events.

The diagnosis of the epilepsy syndrome was based on clinical semiology, radiographic findings (computed tomography or magnetic resonance imaging), and electroencephalography. Epilepsy syndromes were classified according to the International League Against Epilepsy Commission on Classification. The baseline seizure frequency was defined as the frequency of seizures per 1 month for partial and generalized tonic–clonic seizures (GTCSs), and as the number of days of seizures for myoclonic seizures and absence seizures, immediately prior to the prescription of OCB

or LEV. The type of treatment was categorized into two groups: initial monotherapy and second monotherapy. The total daily dosage was identified for each initial, final, and maximum dosage. Treatment efficacy was evaluated at the final visit and measured based on a five-point scale regarding outcome: seizure freedom, rare seizure, 75% seizure reduction, 50% seizure reduction, and not effective. Tolerance was defined as a decrease in efficacy after at least 6 months of seizure remission. If the dosage of medications was changed, the treatment response was identified before and after the change of dose. The reason for discontinuation was entered into the database using four criteria: not effective, side effects, both, and others. Frequent adverse events were also recorded.

Statistical analyses were performed using the Statistical Package for Social Science version 12.0(SPSS, Chicago, IL, USA) software for Windows. Retention rates at 1, 2, and 3 years were calculated using a life-table method. Regarding efficacy outcome, treatment discontinuation, and adverse events, categorical variables were compared using Fisher's exact test or the chi-squared test, and continuous variables were compared using Student's *t* test. *P* values ≤ 0.05 were considered statistically significant.

III. Results

Patient demographics

A total of 307 patients were recruited into the study, including 177 (57.6%) patients with OCB (Table 1). Among the 177 patients with OCB, 158 patients

(89.3%) had LRE and the remaining patients (10.7%) had epilepsy with GTCS. Among the 130 patients with LEV, 58 (52.3%) had LRE, 32 (24.6%) had epilepsy with GTCS, 28 (21.5%) had juvenile myoclonic epilepsy (JME), and two (1.5%) had absence epilepsy.

In the LRE subgroup, patients treated with OCB were older than those treated with LEV (mean age, 46.0 ± 14.7 years (range, 18–86 years) vs 34.51 ± 14.7 years (range, 14–77 years); $P < 0.001$). The mean duration of follow-up in the OCB group was longer than that recorded in the LEV group (63.9 ± 38.3 months (range, 1–120 months) vs 29.1 ± 18.4 months (range, 1–58 months); $P < 0.001$). The baseline seizure frequency in the OCB and LEV groups was 1.85 ± 3.09 per month (range, 0.1–20 months) and 2.36 ± 5.08 per month (range, 0–30 months), respectively ($P = 0.357$). OCB was prescribed to 115 patients (72.8%) and LEV was prescribed to 30 patients (44.1%) as the initial monotherapy ($P < 0.001$). In the GE subgroup, patients treated with OCB were older than those treated with LEV, and the mean duration of follow-up in the OCB group was longer than that recorded in the LEV group.

Efficacy

Among the cases that had LRE, 86 patients (54.4%) with OCB and 36 patients (52.9%) with LEV remained seizure free during the follow-up period ($P = 0.837$). A >50% seizure reduction (i.e., responder rate) was achieved in 94.3% of the patients treated with OCB and in 91.2% of the patients treated with

Table 1. Baseline characteristics of the study population

	Oxcarbazepine	Levetiracetam	*P*-value
Localization-related epilepsy	158 (89.3%)	68 (52.3%)	<0.001
Sex (male, %)	104 (65.80%)	41 (60.3%)	0.427
Age (mean ± SD, years)	46.0 ± 14.7 (18–86)	34.51 ± 14.68(18–77)	<0.001*
Initial monotherapy (n, %)	115 (72.8%)	30 (44.1%)	<0.001
Duration of follow-up (months)	63.9 ± 38.3 (1–120)	29.1 ± 18.4 (1–58)	<0.001*
Baseline seizure frequency (per month)	1.85 ± 3.09 (0.1–20)	3.49 ± 6.52 (0.1–30)	0.067*
Initial dose (mg/day)	511.7 ± 294.8 (150–1800)	797.8 ± 267.2 (250–1500)	
Final dose (mg/day)	863.5 ± 300.0 (150–1800)	1047.8 ± 543.4 (250–2500)	
Maximum dose (mg/day)	910.0 ± 255.0 (300–1800)	1150.7 ± 534.5 (500–2500)	
Generalized epilepsy	19	62	<0.001
Sex (male, %)	11 (57.9%)	19 (30.6%)	0.031
Age (mean ± SD, years)	39.4 ± 8.0 (29–56)	25.0 ± 9.7 (18–65)	<0.001*
Initial monotherapy (n, %)	13 (68.4%)	28 (45.2%)	0.076
Duration of follow-up (months)	77.8 ± 38.7 (8–120)	33.2 ± 17.3 (2–59)	<0.001*
Baseline seizure frequency (per month)	1.11 ± 0.33 (1–2)	1.13 ± 2.23 (1–15)	0.979*
Initial dose (mg/day)	710.53 ± 303.49 (300–1200)	818.6 ± 272.3 (500–1500)	
Final dose (mg/day)	888.16 ± 252.81 (300–1200)	1106.9 ± 480.1 (125–2000)	
Maximum dose (mg/day)	935.53 ± 194.24 (600–1200)	1239.5 ± 494.9 (500–3000)	

Pearson's chi-squared test and *Student's *t* test were used for statistical analyses. SD, standard deviation

LEV (P = 0.392) (Fig. 1A). In cases with GE, the seizure-free rate and the responder rate were not significantly different between the OCB and LEV groups (Fig. 1B). LEV was effective not only for JME, with a 57.1% seizure-free rate (16 out of 28 patients) and a 92.9% responder rate (26 out of 28 patients), but also for epilepsy with GTCS, with a 62.5% seizure-free rate (20 of 32 patients) and a 93.8% responder rate (30 of 32 patients).

In the LRE subgroup, the baseline seizure frequency was inversely correlated with seizure-free outcome (0.96 ± 0.49 vs 2.25 ± 3.65 days/month; P = 0.030) in patients treated with OCB, and a >75% seizure reduction (2.69 ± 6.04 vs 7.59 ± 7.66 days/month; P = 0.021) and a responder rate of 2.92 ± 6.08 vs 9.33 ± 8.62 (P = 0.020) in patients treated with LEV (Table 2).

In the GE subgroup, in contrast, the baseline seizure frequency was not associated with efficacy in patients treated with either of the two drugs. Treatment pattern (initial monotherapy or second monotherapy) of OCB and LEV was not correlated with drug efficacy. Although the dose of OCB and the initial dose of LEV were not associated with efficacy, patients who did not become seizure free received larger doses of LEV than did patients who had become seizure free in the GE and LRE subgroups (Fig. 2).

Retention rate

In the LRE subgroup, the retention rates of OCB at 1, 2, and 3 years were 85.8%, 83.1%, and 79.8%, and those of LEV were 80.2%, 76.7%, and 74.9%, respectively (Fig. 3). The retention rates in the GE subgroup were 94.5% at 1 year and 93.1% at 3 years in patients treated with OCB, and 80.2% at 1year

Figure 1. Efficacy of OCB and LEV in the treatment of localization-related epilepsy (A) and generalized epilepsy (B). Pearson's chi-squared test and *Fisher's exact test association were used as statistical analyses.

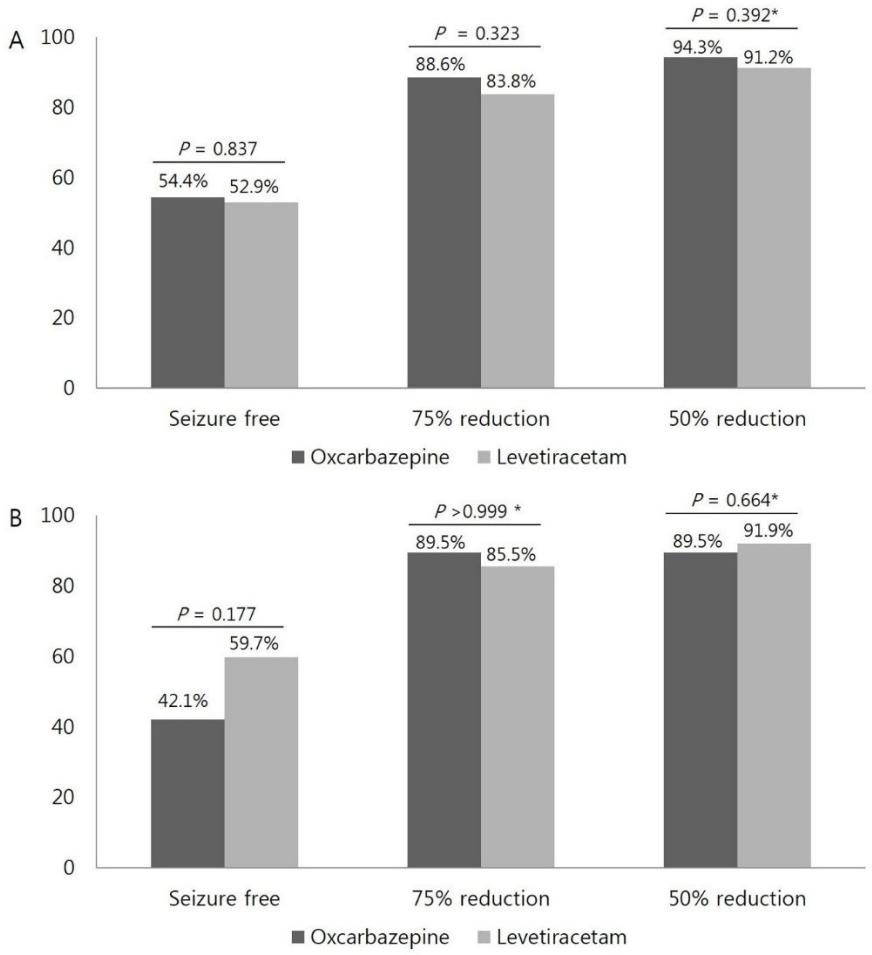
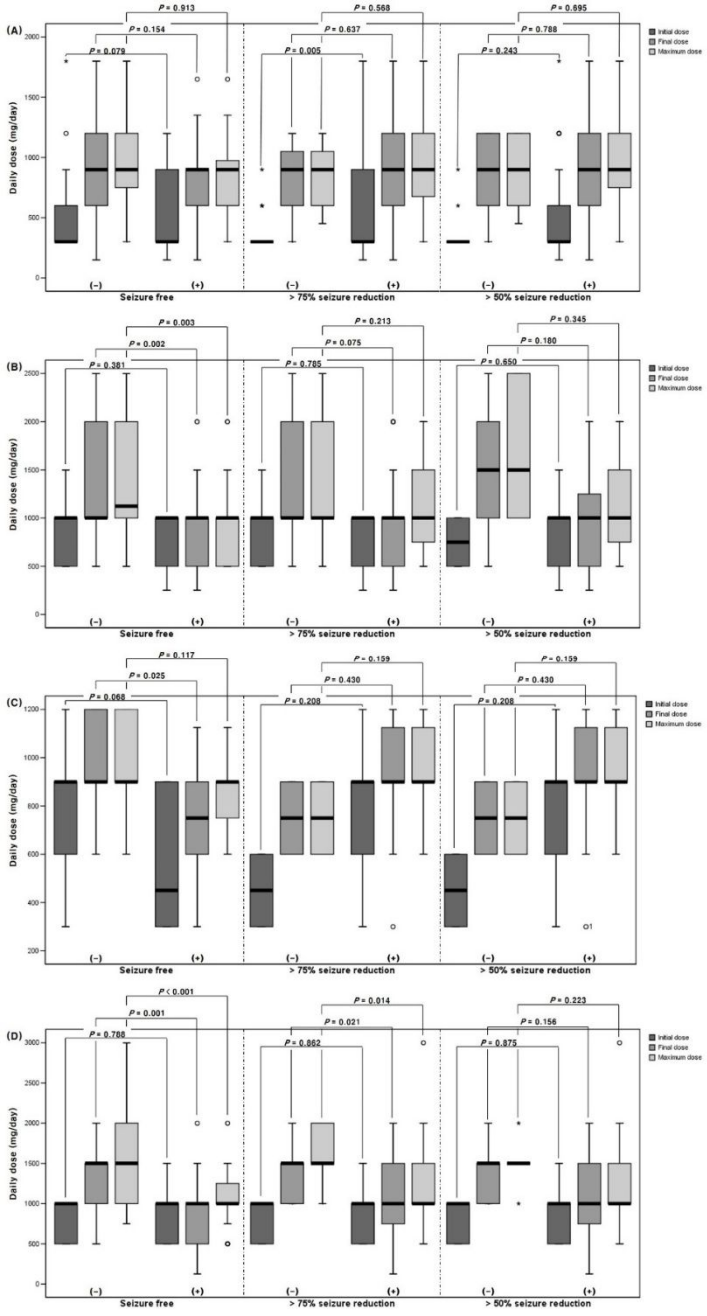


Table 2. Efficacy-related factors

			Seizure freedom			75% seizure reduction			50% seizure reduction		
			Yes	No	*P*-value	Yes	No	*P*-value	Yes	No	*P*-value
Localization related epilepsy	OCB	Baseline seizure frequency (days/month)	1.0 ± 0.5	2.3 ± 3.7	0.03	1.7 ± 3.4	2.3 ± 1.3	0.55	1.8 ± 2.3	2.3 ± 1.5	0.69
		Initial monotherapy (n, %)	64 (74.4)	51 (70.8)	0.61[a]	104 (74.3)	11 (61.1)	0.27[b]	109 (73.2)	6 (66.7)	0.71[b]
	LEV	Baseline seizure frequency (days/month)	2.4 ± 5.7	4.7 ± 7.2	0.15	2.7 ± 6.0	7.6 ± 7.7	0.02	2.9 ± 6.1	9.3 ± 8.6	0.02
		Initial monotherapy (n, %)	18 (50.0)	12 (37.5)	0.30[a]	25 (43.9)	5 (45.5)	>0.99[b]	27 (43.5)	3 (50.0)	>0.99[b]
Generalized epilepsy	OCB	Baseline seizure frequency (days/month)	1.0 ± 0.0	1.1 ± 0.4	0.36	1.1 ± 0.3	N/A	N/A	1.1 ± 0.3	N/A	N/A
		Initial monotherapy (n, %)	7 (87.5)	6 (54.5)	0.18[b]	13 (76.5)	0	0.09[b]	13 (76.5)	0	0.09[b]
	LEV	Baseline seizure frequency (days/month)	1.2 ± 2.9	1.0 ± 0.8	0.71	1.2 ± 2.4	1.0 ± 0.7	0.89	1.1 ± 2.3	1.0 ± 0.6	0.93
		Initial monotherapy (n, %)	17 (45.9)	11 (44.0)	0.88[a]	23 (43.4)	5 (55.6)	0.72[b]	26 (45.6)	2 (40.0)	>0.99[b]

[a]Pearson's chi-squared test, [b]Fisher's exact test, and Student's *t* test were used for statistical analyses. OCB, oxcarbazepine; LEV, levetiracetam

Figure 2. Relationship between the daily dose and efficacy of OCB (A) and LEV (B) in localization-related epilepsy, and efficacy of OCB (C) and LEV (D) in generalized epilepsy. Student's *t* test was used for statistical analysis. OCB, oxcarbazepine; LEV, levetiracetam



and 74.9% at 3 years in patients treated with LEV. The retention rates in patients treated with OCB and LEV were not significantly different in the LRE ($P = 0.098$) and GE (0.133) subgroups. The discontinuation rates were not significantly different between patients treated with OCB (55 out of 177 patients, 31.1%) and those treated with LEV (37 out of 130 patients, 28.5%; $P = 0.622$). The main reasons for discontinuation were lack of efficacy (32.7%) in patients treated with OCB and the presence of side effects (27.1%) in those treated with LEV (Table 3). Nine patients in the OCB and three patients in the LEV group discontinued treatment after seizure remission.

Adverse events

In the OCB and LEV groups, a total of 117 adverse events in 81 (45.8%) patients and 114 events in 74 (56.9%) patients were recorded, respectively ($P = 0.053$) (Table 4.). The most common adverse events associated with OCB were headache (22.6%), dizziness (15.3%), and general weakness (11.9%). Headache was associated with a high rate of discontinuation of OCB (15.0%, six out of 40 patients, $P = 0.013$). The most common adverse events associated with LEV were irritability (33.8%), dizziness (16.9%), headache (14.6%), and somnolence (10.0%), none of which were correlated with drug discontinuation. The comparison of the two groups revealed that general weakness (11.9% vs 4.6%; $P = 0.027$) and skin rash (4.0% vs 0%; $P = 0.022$) were more frequent in the OCB group, whereas irritability (0.6% vs 33.8%; $P < 0.001$) was more frequent in the LEV group. The baseline seizure

Figure 3. Retention curve illustrating the percentage of patients still being treated with OCB and LEV in the LRE (A) and GE (B) subgroups, as calculated using a life-table method.

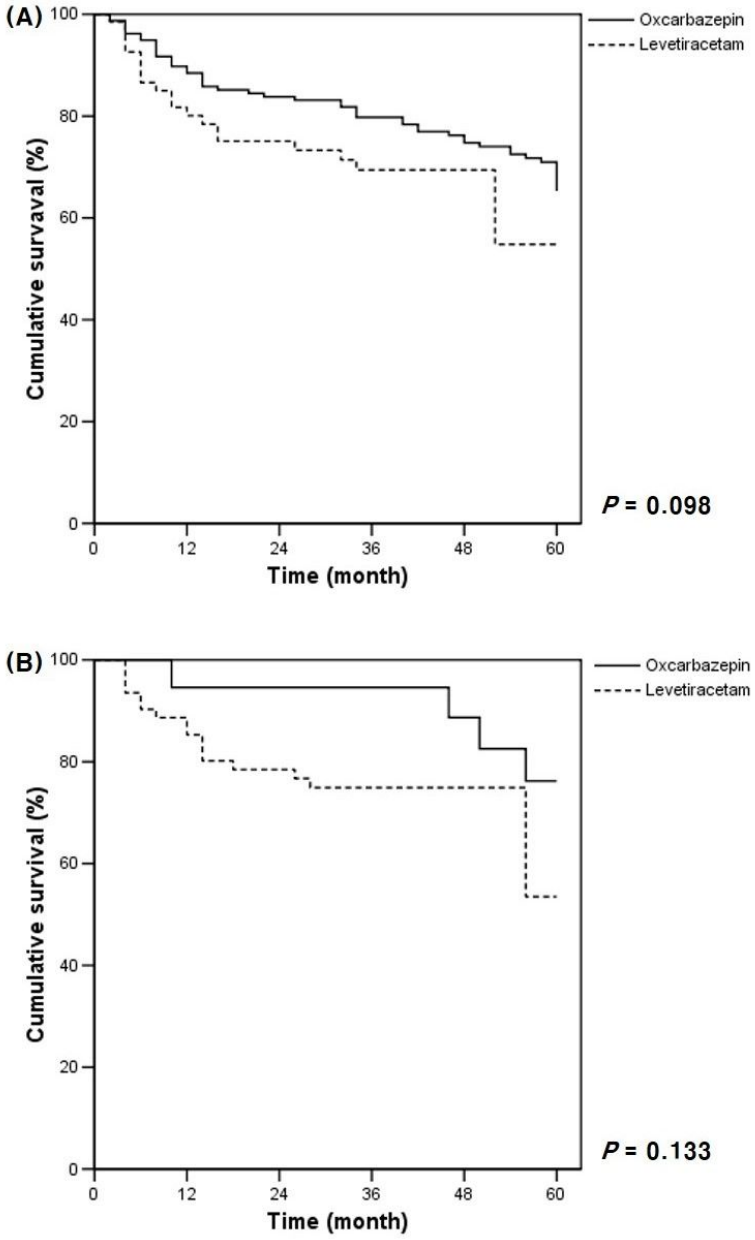


Table 3. Reasons for discontinuation of levetiracetam

	Oxcarbazepine	Levetiracetam	*P*-value
Not effective	18 (32.7%)	7 (18.9%)	0.144
Side effects	8 (14.5%)	10 (27.0%)	0.139
Both	1 (1.8%)	2 (5.4%)	0.562*
Others	19 (34.5%)	15 (40.5%)	0.559
Tapering	9 (16.4%)	3 (8.1%)	0.349*
Total	55 (31.1%)	37 (28.5%)	0.622

Pearson's chi-squared test and *Fisher's exact test were used for statistical analyses.

Table 4. Adverse events during therapy

Adverse event	Oxcarbazepine	Levetiracetam	*P*-value
Irritability	1 (0.6%)	44 (33.8%)	<0.001
Dizziness	8 (4.5%)	13 (10.0%)	0.060
Headache	13 (7.3%)	5 (3.8%)	0.197
Somnolence	27 (15.3%)	22 (16.9%)	0.693
Depression	40 (22.6%)	19 (14.6%)	0.079
General weakness	21 (11.9%)	6 (4.6%)	0.027
Gastrointestinal problems	3 (1.7%)	0 (0.5%)	0.265*
Psychosis	2 (1.1%)	4 (3.1%)	0.246*
Rash	7 (4.0%)	0 (0%)	0.022*
Others	5 (2.8%)	1 (0.8)	0.047*
Total	81 (45.8%)	74 (56.9%)	0.053

Other adverse events were weight change, behavioral problems, and facial edema.

Pearson's chi-squared test and *Fisher's exact test were used for statistical analyses.

frequency, dose of medication, and dose-escalation rate to the maximum dosage were not associated with any adverse events.

IV. Discussion

This study was a retrospective analysis that was performed to compare the efficacy, tolerability, and adverse events of two new AEDs, OCB and LEV, based on a large population with a long follow-up period at a tertiary epilepsy center. As all adult patients who were treated with OCB or LEV as a monotherapy during the period from January 2007 to March 2009 were included in this study, the risk of selection bias was low. Thus, the results reported here may be a good reflection of the actual clinical setting.

Among the patients who received OCB, almost all patients (89.3%) had LRE, whereas the remaining patients had generalized tonic–clonic seizures. OCB has been shown to be as effective in terms of seizure control as is monotherapy or adjunctive therapy for the treatment of partial seizure (5, 7, 10), but not GE. Several articles have reported the OCB-induced worsening of myoclonic seizures or myoclonic status epilepticus (11). In contrast, only half of the patients (52.3%) who received LEV had LRE. LEV monotherapy has been shown to provide effective seizure control and is well tolerated in adults with newly diagnosed LRE or GE, and is not inferior to carbamazepine (7) in children with LRE or GE (9).

OCB and LEV appeared to be similarly effective in controlling seizures as a monotherapy in the LRE subgroup, as 54.4% and 52.9% of patients, respectively, achieved seizure freedom ($P = 0.177$). Moreover, they

yielded a 50% responder rate of 94.3% and 91.2% ($P = 0.392$), respectively. In our study, efficacy was similar or better than that reported previously. A retrospective study of OCB monotherapy reported that 76.9% of patients were seizure free after 1 year of treatment, and that 98.1% of patients achieved a 50% seizure reduction (12). A prospective trial showed a similar efficacy of OCB monotherapy in adults with newly diagnosed partial epilepsy (62.6% seizure freedom) (13). Another prospective study of alternative monotherapy with OCB reported a seizure-freedom rate of 18% and a responder rate of 52% in patients with partial seizures (14). Another retrospective study of LEV monotherapy showed a seizure-freedom rate of 44.6% in LRE patients (75 out of 161) (15). A previous randomized controlled trial reported a similar efficacy of LEV monotherapy in adult patients, with a seizure-freedom rate of 56.6% and a responder rate of 86.0% over 1 year (7). In our study, LEV was also very effective in controlling seizure in 62 patients with GE, 59.7% of whom achieved seizure freedom, and yielded a 50% responder rate of 91.9%. This was higher than that found in a retrospective study of 59 patients who received LEV monotherapy over 12 months, in which the seizure-freedom rate was 54.2% and the 50% responder rate was 74.5% (15). Previous randomized controlled trials have shown that adjuvant treatment with LEV in patients with GE was effective in controlling myoclonic seizures (25% of seizure freedom and 58.3% of >50% seizure reduction during a 16-week period) (16) and GTCS with refractory idiopathic GE (34.2% of seizure freedom and 72.2% of >50% seizure reduction during a 20-week period) (17).

In addition, OCB was also effective in the treatment of 19 patients with GTCS, with a seizure-freedom rate of 42.1% and a responder rate of 89.5%.

Previous studies have shown that a high seizure frequency prior to AED treatment indicates a poorer prognosis (18, 19). In our study, the baseline seizure frequency was a predictor of OCB and LEV efficacy in the LRE, but not in the GE subgroup. The individual dose of OCB was not associated with drug efficacy. Although the final and the maximum dose of LEV were much higher in nonseizure-free patients than they were in seizure-free patients, a 75% or 50% seizure reduction was not correlated with these parameters. A recent meta-analysis revealed that the individual dose of LEV may not be associated with drug efficacy (20).

The retention rates calculated here for the LRE subgroup using a life-table method were 85.8% at 1 year and 79.8% at 3 years in patients treated with OCB, and 80.2% at 1year and 74.9% at 3 years in patients treated with LEV. There was no significant difference between the two medications in the LRE and GE subgroups. Previous studies have reported similar retention rates of 85%–91% after 1 year for OCB (21, 22). Other studies of LEV reported similar or lower retention rates of 65%–74% after 1 year, and of 45%–58% after 2 years (23, 24). These retention rates of the two drugs were higher than those of other new AEDs (retention rates of 30% for topiramate, 29% for lamotrigine, and <10% for gabapentin at 3 years) (25).

The lack of effectiveness and adverse events of AEDs are major causes of discontinuation of epilepsy therapy. Among the 177 patients with OCB, 55 patients (31.1%) dropped out, with the main reasons for

discontinuation being lack of efficacy (32.7%). Thirty-seven of the whole 130 patients (28.5%) with LEV discontinued treatment, mainly because of the presence of side effects (27.1%). A recent retrospective study that analyzed the therapeutic failure of monotherapy showed that the high rate of LEV failure was caused by a lack of effectiveness compared with OCB (40% in the LEV vs 18% in the OCB group; $P = 0.027$) (26). Nine patients in the OCB and patients in the LEV group discontinued treatment after seizure remission.

In our study, general weakness (11.9%) and skin rash (4.0%) were more frequent in patients who received OCB compared with LEV, and headache was the adverse event that was associated with the high rate of discontinuation of OCB. The literature on this subject reports that 5%–10% of cases treated with OCB are associated with skin rash, and it is well known that OCB increases the risk of adverse cutaneous reactions (include skin rash), which can be a reason for drug discontinuation (5, 10, 27). Irritability (33.8%) was more frequent among patients treated with LEV compared with those treated with OCB (0.6%) in our study; moreover, irritability rates were higher than we had expected. A randomized, double-blind, placebo-controlled trial of LEV for treating GTCS in patients with idiopathic GE reported that irritability developed in 5.1% of patients during a 24-week period (17). Among the 228 patients included in a recent observational study of LEV monotherapy for a median duration of 12 months, seven cases (3.1%) of intolerable aggression and two cases (0.9%) of irritability were reported (15). The long-term follow-up period of our study may explain the high incidence of irritability recorded.

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VII. 국 문 초 록

서론: 최근 뇌전증 치료 단독 요법으로 널리 사용되고 있는 새로운 항뇌전증약제인 옥스카바제핀과 레베티라세탐의 장기간 치료 효과와 안정성을 규명하고자, 대규모 환자군을 대상으로 한 후향적 연구를 기획하였다.

방법: 2007년 1월부터 2009년 3월 사이에 뇌전증 치료 목적으로 옥스카바제핀 또는 레베티라세탐 단독 요법을 처방받은 모든 환자를 포함하였다. 뇌전증 치료 수술을 받은 환자나 활동적인 병을 가지고 있는 환자들은 연구에서 제외시켰다. 연구에 포함된 환자들의 전자의무기록 정보를 후향적으로 모집, 분석하였다.

결과: 전체 307명의 환자가 연구에 포함되었다. 옥스카바제핀 단독 요법을 처방받은 177명 중 158명, 레베티라세탐 처방받은 130명 중 58명은 국소관련뇌전증 증후군을 갖고 있었다. 국소관련성 뇌전증환자군에서, 옥스카바제핀군의 54.4%, 레베티라세탐군의 52.9%의 환자가 관찰기간 동안 발작 완전 관해를 달성했다. (*P* = 0.837) 레베티라세탐은 청소년근간대뇌전증 (완전 관해율 57.1%) 및 이른 환자는 전신강직간대발작뇌전증 (완전관해율 62.5%) 에서도 효과가 있었다. 국소관련뇌전증에서 치료 전 발작의 빈도는 발작의 완전 관해율과 역상관관계를 보였다. 두 약제 모두 3년간 우월한 유지율을 보였으며, 두 약제간 의미있는 차이는 없었다 (옥스카바제핀군 81.4% vs 레베티라세탐군 72.1%; *P* =0.781). 두 약제의 약제관련 부작용을 비교해보았을 때 옥스카바제핀군에서는 전신무력감 (11.9% vs 4.6%; P = 0.027) 과 피부발진 (4.0% vs 0%; P = 0.022) 이, 레베티라세탐군에서는

불안감 **(0.6% vs 33.8%; P < 0.001)** 이 흔히 나타났다. 약제의 용량은 약제 관련 부작용의 발생과 상관 없었다.

결론: 국소관련뇌전증에서 옥스카바제핀과 레베티라세탐 단독요법은 장기간 관찰하였을 때에도 비슷한 효과와 안전성을 보였고, 레베티라세탐은 전신뇌전증에서도 치료효과가 있었다. 3년 이상의 기간 동안 두 약제 모두 높은 치료유지율을 보였다. 흔한 장기간 치료관련 부작용은 옥스카바제핀에서는 피부발진, 레베티라탐에서는 불안감이었다.

주요어: 옥스카바제핀, 레베티라세탐, 뇌전증, 단독요법, 장기치료경험

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