# Evaluation of seizure control and quality of life in patients with brain tumor related epilepsy treated with lacosamide as add-on therapy: preliminary data

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***Objective:***
Brain tumor-related epilepsy (BTRE) is often drug resistant and patients can be forced to take polytherapy that can influence their quality of life (QoL). Lacosamide (LCM) is a new antiepileptic drug (AED) used as adjunctive therapy in patients with partial seizures with or without secondary generalization. This study evaluated the efficacy of LCM as add-on and its possible effect on QoL in patients with BTRE during six months of treatment.

***Methods:***
Patients were evaluated at baseline, after 3 and at finally follow-up at 6 months.
Patients underwent QoL tests, test for adverse events (Adverse Event Profile-AEP) and evaluation of seizure frequency.
We added LCM as add-on.

***Results:***
• We have recruited 25 adult patients (M 18, F 7; mean age 41.9) affected by BTRE with uncontrolled partial-onset seizures treated with AED polytherapy (see Table 1)

• The starting dosage of LCM was 100 mg/die with a weekly increase of 100 mg/day up to reach the maximum dosage of 400 mg/day in 4 weeks (mean dose 300 mg/die)

• Four patients dropped out for scarce compliance and 1 for inefficacy.

• In all patients, mean seizure number in the month prior to administration of LCM was 8.6

• In the subgroup of 22 evaluable patients (i.e. LCM dose greater than 100 mg/day):

✓***Mean seizure frequency compared with baseline period during the 6 months (see Fig. 1):***

The mean number of seizures significantly decreased from baseline **(9.4)** to 3 months **(0.8)** (P=0.005) and to 6 months **(1.2)** (P=0.005)

✓***Efficacy of LCM (at final follow-up-6 months)*** **(see Fig. 2):**

7 patients were seizure free

12 patients have a significant reduction of seizures ≥ 50%

2 patients were stable

1 patient number of seizures increased

⇒ **Responder Rate of 86.4%**

**No clinical side effects were observed.**

**Regarding the Quality of Life evaluations:**
•No significant differences were observed at 3 and 6 months evaluations for all tests.

**Regarding information about the patient's functional status:**
•We found, in all patient population, a significative reduction in the mean score of KPS and BI between baseline and 6 months of follow-up (KPS p=0.003; BI p=0.007)

**Table 1**

| | Age | Sex | Hystology | Tumor site | Surgery | Disease Progression | CT (during follow-up) | RT (during follow-up) | Seizure Type | Other AEDs | LCM dosage (mg/day) | Seizure number in the last month (pre-LCM) | Number seizure at last follow-up available | NumberSeizure/ month at 3 months | NumberSeizure/ month at finally follow-up (6 months) | Side Effects | Drop out reason |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 42 | M | LGA | F dx | PR | NO | TMZ | NO | CP | PHT 300 | 100 | 3 | 3 | - | | NO | *Scarce compliance** |
| 2 | 22 | F | LGA | F dx | NO | NO | NO | NO | SP | LEV 1000 | 300 | 4 | | 0 | 0 | NO | |
| 3 | 42 | F | LGA | F dx | GTR | NO | NO | NO | CP | LEV 3000 ZNS 400 | 200 | 30 | | 0.7 | 0.5 | NO | |
| 4 | 46 | M | GBM | F sn | GTR | NO | TMZ | NO | SP | LEV 3000 VPA 1500 | 400 | 2 | | 0.7 | 0.3 | NO | |
| 5 | 32 | M | GBM | F-T sn | PR | NO | TMZ | NO | CP | LEV 3000 VPA 2000 | 400 | 2 | | 0 | 0 | NO | |
| 6 | 30 | M | LGA | T dx | PR | NO | NO | NO | CP | LEV 3500 CBZ 600 | 300 | 2 | | 0.3 | 0.5 | NO | |
| 7 | 64 | F | LGO | P sn | PR | NO | TMZ | NO | SP | LEV 3000 PHT 150 | 300 | 3 | | 0 | 0 | NO | |
| 8 | 31 | F | AOA | T sn | GTR | YES | TMZ | NO | CP | LEV 2000 OXC 1200 | 400 | 30 | | 1 | 8 | NO | |
| 9 | 38 | F | LGA | F sn | GTR | NO | NO | NO | SP+SGTC | LTG 300 | 200 | 2 | | 0 | 0 | NO | |
| 10 | 57 | M | AOD | T-O dx | GTR | NO | NO | NO | SP+SGTC | CBZ 600 | 300 | 3 | | 0 | 0 | NO | |
| 11 | 27 | F | AA | F dx | GTR | NO | NO | NO | CP+SGTC | TPM 350 | 100 | 2 | 2 | - | | NO | *Scarce compliance** |
| 12 | 38 | M | GBM | F-T sn | GTR | YES | TMZ | NO | SP | LEV 3000 | 300 | 3 | | 0 | 0.2 | NO | |
| 13 | 32 | M | AOD | F-P dx | PR | NO | NO | NO | SP | LEV 3500 CBZ 200 | 400 | 2 | | 1 | 1 | NO | |
| 14 | 43 | M | LGA | F dx | PR | NO | NO | NO | CP | PHT 400 | 300 | 8 | | 0 | 0 | NO | |
| 15 | 45 | M | LGO | F-P sn | BIOPSY | NO | TMZ | NO | SP+SGTC | VPA 1500 LEV 3000 LTG 300 | 400 | 7 | | 1.3 | 1 | NO | |
| 16 | 34 | M | AA | T-P sn | GTR | NO | NO | NO | SP+SGTC | LEV 4000 | 400 | 2 | | 0.3 | 0.3 | NO | |
| 17 | 48 | M | GBM | F sn | GTR | YES | TMZ | YES | SP+SGTC | VPA 1200 | 300 | 12 | | 1.3 | 1.3 | NO | |
| 18 | 29 | M | AA | Multifocal | BIOPSY | NO | TMZ | NO | SP | PB 100 | 300 | 2 | 2 | - | | NO | *Scarce compliance* |
| 19 | 59 | F | LGO | F-T dx | PR | NO | TMZ | NO | CP+SGTC | VPA 1000 | 100 | 3 | 2 | - | | NO | *Scarce compliance** |
| 20 | 54 | M | AA | T sn | GTR | NO | NO | NO | CP | LEV 2500 TPM 150 | 300 | 30 | | 2 | 2.8 | NO | |
| 21 | 42 | M | AA | F-T dx | BIOPSY | NO | NO | YES | SP | LEV 2000 | 300 | 6 | | 0.3 | 0.3 | NO | |
| 22 | 38 | M | GBM | F-T dx | GTR | YES | FTMU | NO | SP+SGTC | CBZ 800 | 200 | 3 | | 0 | 0 | NO | |
| 23 | 74 | M | LGA | F sn | GTR | NO | CCNU | NO | CP | OXC 900 LEV 3000 | 400 | 4 | 4 | - | - | NO | *Inefficacy** |
| 24 | 43 | M | LGA | F-P dx | NO | NO | NO | NO | SP | CBZ 1200 | 400 | 2 | | 2 | 2 | NO | |
| 25 | 38 | M | AA | F-T sn | BIOPSY | YES | TMZ | YES | SP | LEV 3000 | 400 | 48 | | 0.8 | 0.8 | NO | |

**Legend**
-Hystology: LGA : low grade astocytoma ; GBM: glioblastoma; LGO : low grade oligodendroglyoma; AOA : anaplasticoligoastocytoma; AOD: anaplasticoligodendroglyoma; AA: anaplasticastrocytoma
-Tumor site: F: frontal; F-T: fronto-temporal; T: temporal;P : parietal;T-O: temporo-occipital;F-P:fronto-parietal; T-P: temporo-parietal
-Surgery: PR: partial resection; GTR: gross total resection
-RT: radiotherapy
-CT: TMZ: temozolomide; FTMU: fotemustine; CCNU:lomustine
-Seizure type: SP: simple partial; PC: complex partial; CP+SGTC: complex partial secondarilygeneralized; SP+SGTC: simple partial secondarilygeneralized
-AEDs (antiepilepticdrugs): LEV: levetiracetam; PHT: phenitoyn; ZNS : zonisamide; VPA: valproicacid; CBZ: carbamazepine; OXC: oxcarbazepine; LTG: lamotrigine; TPM: topiramate
*drop-out

**Fig. 1**

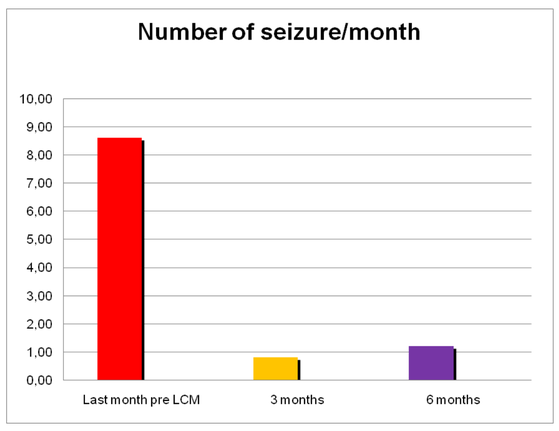
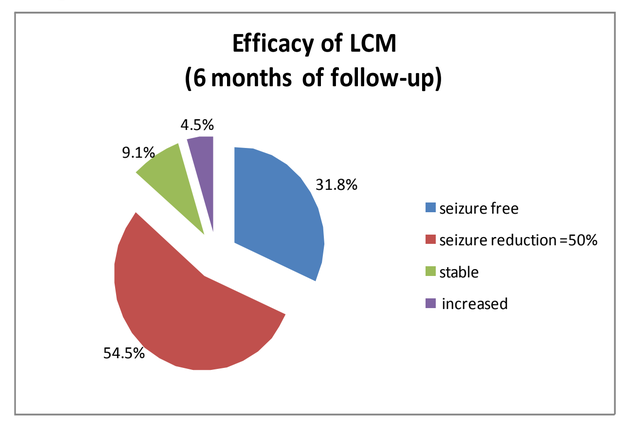



**Fig. 2**




***Discussion:***
Our preliminary data seem to indicate that LCM has a good efficacy in patients with BTRE and seems not to induce significant side effects.

Despite the objective worsening in their functional status, probably due to disease progression, this evidence does not influence the perception of quality of life in our patients, as shown by QOL test, indicating that control of seizure could be one of the most important variable that can influence the QOL.

Use of LCM in add-on in patients with BTRE may represent a valid alternative as add-on in this particular patient population.

However larger samples are necessary in order to draw definitive conclusions.

***References:***

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