Supplementary table 1 Percentage of reduction in seizure frequency from baseline after Mg- VPA treatment

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| --- | --- | --- | --- | --- |
| case | Seizure type | Mean number of seizures per month for 12 months prior to the Mg-VPA treatment | Mean number of seizures per month for 12 months after Mg- VPA treatment  | the percentage of reduction in seizure frequency(%) |
| Mg -VPA-1Mg -VPA-2Mg -VPA-3Mg -VPA-4Mg -VPA-5Mg -VPA-6Mg -VPA-7Mg -VPA-8Mg -VPA-9Mg -VPA-10Mg -VPA-11Mg -VPA-12Mg -VPA-13Mg -VPA-14Mg -VPA-15Mg -VPA-16Mg -VPA-17Mg -VPA-18Mg -VPA-19Mg -VPA-20Mg -VPA-21Mg -VPA-22Mg -VPA-23Mg -VPA-24Mg -VPA-25Mg -VPA-26Mg -VPA-27Mg -VPA-28Mg -VPA-29Mg -VPA-30Mg -VPA-31Mg -VPA-32Mg -VPA-33Mg -VPA-34Mg -VPA-35Mg -VPA-36Mg -VPA-37Mg -VPA-38Mg -VPA-39Mg -VPA-40Mg -VPA-41Mg -VPA-42Mg -VPA-43Mg-VPA-44Mg -VPA-45Mg -VPA-46Mg -VPA-47Mg -VPA-48Mg -VPA-49Mg -VPA-50Mg -VPA-51Mg -VPA-52Mg -VPA-53Mg -VPA-54Mg -VPA-55Mg -VPA-56Mg -VPA-57Mg -VPA-58Mg -VPA-59Mg -VPA-60Mg -VPA-61Mg -VPA-62Mg- VPA-63Mg -VPA-64Mg -VPA-65Mg -VPA-66Mg -VPA-67 | GTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsAbsenceGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsAbsenceGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsCPS and GTCsGTCsCPS and GTCsGTCsGTCsCPS and GTCsGTCsCPS and GTCsCPS and GTCsCPSCPSCPS and GTCsCPSCPS and GTCsCPSPSAbsence and CPSPSAbsence and CPS | 989.41011.57891012.813141510.5987.389.9101112.514.315.57.58.99101213.598.91097.489.510.5879.51315.21820.51112.21417.1168.17.210.513.913141618.17.289.110.211.2109.320.215 | 00000000000000000000000000000000000122111.132.2442257.363.334.25567155.36.388.11011.410.823.117.5  | seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-free87.578.981.087.585.788.476.985.577.880.581.883.664.057.362.559.358.360.064.061.557.156.317.126.421.312.120.610.7seizure increasedseizure increasedseizure increasedseizure increased |

GTCs ,Generalized tonic clonic seizures; PS, Partial seizure; CPS, Complex partial seizure.

Supplementary table 2 Percentage of reduction in seizure frequency from baseline after Na-VPA treatment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| case | Seizure type | Mean number of seizures per month for 12 months prior to the Mg-VPA treatment | Mean number of seizures per month for 12 months after Mg- VPA treatment  | the percentage of reduction in seizure frequency(%) |
| Na -VPA-1Na -VPA-2Na -VPA-3Na -VPA-4Mg -VPA-5Na -VPA-6Na -VPA-7Na -VPA-8Na -VPA-9Na -VPA-10Na -VPA-11Na -VPA-12Na -VPA-13Na -VPA-14Na -VPA-15Na -VPA-16Na -VPA-17Na -VPA-18Na -VPA-19Na -VPA-20Na -VPA-21Na -VPA-22Na -VPA-23Na -VPA-24Na -VPA-25Na -VPA-26Na -VPA-27Na -VPA-28Na -VPA-29Na -VPA-30Na -VPA-31Na -VPA-32Na -VPA-33Na -VPA-34Na -VPA-35Na -VPA-36Na -VPA-37Na -VPA-38Na -VPA-39Na -VPA-40Na -VPA-41Na -VPA-42Na -VPA-43Na -VPA-44Na -VPA-45Na -VPA-46Na -VPA-47Na -VPA-48Na -VPA-49Na -VPA-50Na -VPA-51Na -VPA-52Na -VPA-53 | GTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsAbsenceGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsGTCsCPS and GTCsCPS and GTCsGTCsGTCsCPS and GTCsCPS and GTCsGTCsGTCsGTCsGTCsPSCPSPSCPSPSPSCPSPSCPSPS and GTCsCPSCPS and GTCsPS and GTCsPS and GTCs | 98.3910.21178910121314.115109.3878.8910.51015.212119887141617189.2101114169108101013.2159.116.218.5207.59.211.41211.4 | 000000000000000000001221.123236.56883446.353358.271013710.210219.110.51215.815 | seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-freeseizure-free seizure-free seizure-free 90.086.883.390.077.862.575.057.153.662.552.955.567.460.063.655.068.866.770.037.518.030.024.213.323.137.045.9seizure increasedseizure increasedseizure increasedseizure increasedseizure increasedseizure increased |

GTCs ,Generalized tonic clonic seizures; PS, Partial seizure; CPS, Complex partial seizure.

Supplementary table 3 The baseline demographic characteristics of the patients according to their BMI categories.

|  |  |  |  |
| --- | --- | --- | --- |
| case | Weight(Kg) | Height(m) | BMI(Kg/m2) |
| Mg -VPA-1 | 47.4 | 1.6 | 18.5 |
| Mg -VPA-2 | 50 | 1.55 | 20.8 |
| Mg -VPA-3 | 55 | 1.65 | 20.2 |
| Mg -VPA-4 | 56.2 | 1.57 | 22.8 |
| Mg -VPA-5 | 50 | 1.55 | 20.8 |
| Na -VPA-1 | 50 | 1.65 | 18.3 |
| Na -VPA-2 | 51.5 | 1.6 | 20.1 |
| Na -VPA-3 | 55 | 1.68 | 19.5 |
| Na -VPA-4 | 54 | 1.5 | 24 |

BMI: body mass index; Underweight defined as BMI < 18 kg/m2; Overweight defined as BMI > 23–24.9 kg/m2;Obese defined as BMI > 25 kg/m2.

Supplementary table 4 The BMI categories of patients with epilepsy at the end of study

|  |  |  |  |
| --- | --- | --- | --- |
| case | Weight(Kg) | Height(m) | BMI(Kg/m2) |
| Mg -VPA-1 | 59.4 | 1.6 | 23.2 |
| Mg -VPA-2 | 56.5 | 1.55 | 23.5 |
| Mg -VPA-3 | 65.3 | 1.65 | 24 |
| Mg -VPA-4 | 61.9 | 1.57 | 25.1 |
| Mg -VPA-5 | 58 | 1.55 | 24.1 |
| Na -VPA-1 | 65.9 | 1.65 | 24.2 |
| Na -VPA-2 | 62 | 1.6 | 24.2 |
| Na -VPA-3 | 67.8 | 1.68 | 24 |
| Na -VPA-4 | 57.4 | 1.5 | 25.5 |

BMI: body mass index; Underweight defined as BMI < 18 kg/m2; Overweight defined as BMI > 23–24.9 kg/m2;Obese defined as BMI > 25 kg/m2.