

Supplementary Table 1 Summary of the real-life studies reporting the use of perampanel for treatment-resistant epilepsy in the pediatric population (< 12 years old)

| Author | Country | Year | Study type | Age (N) | Gene mutations | Number of previous AEDs | Number of concomitant AEDs | PER dosing | Treatment time of PER | Follow-up time after PER | Efficacy | Incidence of AE |
|-------------------|---------|------|---------------|---------------------------|----------------|-------------------------|--------------------------------|---|-----------------------|--------------------------------------|--|---|
| Biro, et al[1] | Germany | 2015 | Retrospective | 2-5 y (11) 6-11 y (22) | NA | NA | NA | NA | NA | 3m | Responders: 2-5 y: 9.09% (1/11); 6-11 y: 22.73% (5/22) Sz free: 2-5 y: 9.09% (1/11); 6-11 y: 9.09% (2/22) | 2-5 y: 27.27% (3/11) 6-11 y: 40.91% (9/22) |
| De Liso, et al[2] | Italy | 2016 | Retrospective | <12 y (8) | NA | NA | Mean: 2.375±0.74 Range: 1-3 | Mean: 7.375±3.66 mg Median: 7 mg Range: 3-12 mg | NA | Mean: 6.625± 2.44 m Range: 3-11 m | Sz free: 0%(0/8) Sz reduction ≥75%: 12.5% (1/8) Sz reduction ≥50%: 12.5% (1/8) Sz reduction <50%: 37.5% (3/8) No efficacy: 37.5% (3/8) | 37.5% (3/8) Most frequently occurred: dizziness: 25% (2/8) |
| Heyman, et al[3] | Israel | 2017 | Retrospective | <12 y (15) | NA | Mean: 8.8±3.2 | Mean: 2±1.1 | Mean: 5.1±2.2 mg (0.21±0.09 mg/kg) | NA | Mean: 5.7±3.8 m | Sz reduction: 53.3% (8/15) Sz no change: 46.7% (7/15) | 53.3% (8/15) Most frequently occurred: nervousness:26.7% (4/15), behavioural deterioration: 26.7% (4/15) |

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| Swiderska et al[4] | the United Kindom | 2017 | Retrospective and prospective | <12 y (24) | 1 with CHRNA4 mutation, 1 with PCDH19 mutation, 1 with 15q13 deletion | NA | NA | NA | 12m | 12m | Responders: 21% (5/24) | 15% (3/20) |
| Yun, et al[5] | Korea | 2018 | Retrospective | Mean: 8±2.5 y (22) Range: 3.1-11.4 y | NA | NA | Responders: Mean: 2.3±1.5 Median: 2 Non-responders: Mean: 2.9±1.1 Median: 3 | Mean: 3.8±2.5 mg Range: 0.5-12 mg | Responders: Mean: 11.8±7 m Median: 12.5 m Non-responders: Mean: 4.1±4.2 m Median: 3 m | Mean: 9.2 m Range: 0.5-19 m | Responders: 68% (15/22) Sz free: 23% (5/22) | 41% (9/22) Most frequently: somnolence:23% (5/22) |
| Ikemoto, et al[6] | Japan | 2019 | Retrospective | Mean: 7.1±3.3 y (44) | NA | Mean: 4 Range: 2-9 | 10 with 1 AED, 12 with 2 AEDs, 10 with 3 AEDs, 12 with 4 or more AEDs | Initial dosage: 0.04 mg/kg/day, increased at 2-4-week intervals | 6m | 6m | Responder: 45.4% (20/44) Sz free: 6.8% (3/44) | 22.7% (10/44) |

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| Chang FM, et al[7] | Taiwan | 2020 | Retrospective | Mean: 4±1.6 y (38) Range: 0-7 y | TSC1, TSC2 | Mean: 5.5±0.7 | Mean: 3.8±0.7 | Mean initial dosage: 1.1±0.8 mg Mean maximum: 2.2±1.4 mg | NA | Range: 6-12 m | 50% responder rate at 6 months: 44% (14/32) Sz free at 6 months: 13% (4/32) 50% responder rate at 12 months: 31% (9/29) Sz free at 12 months: 10% (3/29) | 22% (8/38) Most frequently: emotional change: 10.5% (4/38) lethargy: 5.3% (2/38) |
| Mihoko Sakurai, et al[8] | Japan | 2019 | Case report | 6 y | HEXA | 7 | 2 | 2 mg/d | NA | NA | Seizure frequency significantly decreased | NA |
| Lee Chin Wong, et al[9] | Taiwan | 2019 | Case report | 8 y | TPP1 | 6 | NA | Started 1 mg/d and slowly titrated up to 6 mg/day in 4 weeks | 6 m | 6 m | >50% decreases of myoclonus | No obvious side effect |
| Satoru Ikemoto, et al[10] | Japan | 2019 | Case report | Mean: 5y5m Range: 2y6m-7y10m | 1 with LIS-1 deletion, 2 with Miller-Dieker syndrome | NA | Mean: 2.75±0.96 Range: 2-4 | Started with 0.04 mg/kg/day and was increased at 2-4-week intervals | 3 m | 3 m | 3/4 exhibited ≥50% seizure reduction, 1/4 showed no response | 1 with respiratory failure and 1 with sedative effect |

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| Nobutsune Ishikawa, et al[11] | Japan | 2019 | Case report | 7m | SCN1A | 10 | 3 | Started with 0.4 mg/d and was increased to 1.2 mg/d | 11 m | 11 m | Apnoeic seizures disappeared for more than 1 year, improved EEG | NA |
| Atsuko Arisaka, et al[12] | Japan | 2021 | Case report | 4y | SCN8A | 3 | NA | NA | NA | NA | Partially suppressed seizures and involuntary movements | NA |
| Ge Wen- Rong, et al[13] (article in Chinese) | Chinese | 2020 | Case report | 9m | Boonsta- Bosch-Schaff optic atrophy syndrome | 3 | 2 | NA | NA | NA | Sz free | No side effect |

Abbreviations: AEDs, antiepileptic drugs; PER, Perampanel; AE, adverse events; NA, not available; LEV, levetiracetam; Sz, seizure; y, years old; m, months; N, number

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