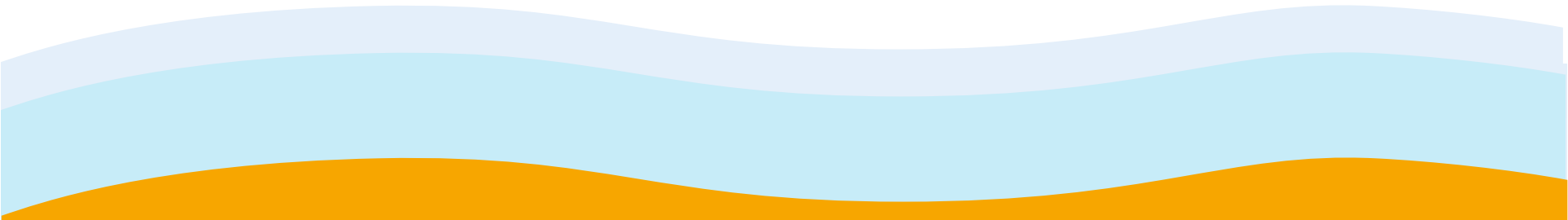


Digital Consultation: “Meet the expert” on the topic of restlessness in PCH2

Q&A



Disclaimer

The PCH2 treatment options listed here are based on data from the 2023 Natural History Study on PCH2 and personal experience from parents. The answers make no claim to be exhaustive and represent neither a specific recommendation nor an endorsement of the drugs or PCH2 treatment options mentioned. It is a compilation of measures that have been tried in the past and is intended for informative purposes only. PCH2cure assumes no liability in this respect.

Q&A session

Questions we have already received

Can spasticity develop in a state of restlessness?

- Restlessness increases the tone (muscle tension) due to the level of arousal = accompanying symptom → **Restlessness does not trigger spasticity**, which is rare in PCH2 anyway, but is accompanied by dystonia (tension in the muscles).
- Even in healthy people, the tone is increased during excitement; in PCH2, **fine regulation of the inhibitory processes is not possible**, resulting in excessive movements and excessive muscle tension.
- Spasticity: activation of the same muscle groups → problem: restriction of joint function with permanent shortening of the muscles.
- Vs. dystonia: activation of different muscle groups occurring in phases → less dangerous than spasticity, as hardly any contractures form and there are no permanent changes to the muscles and joints.

Q&A session

Questions we have already received

Can dystonic attacks be prevented (e.g. with massages and stretches)?

- Generally speaking, **no**.
- Experience shows that dystonic attacks tend to occur in the evening; one possible hypothesis for this is that triggers accumulate during the day and then “discharge” in the evening or at night.
- However, dystonic attacks sometimes also occur in the morning → it varies greatly and there is **no certain trigger**.
- Tips from parents:
 - Kinesthetics; e.g.: careful twisting as a countermeasure to stretching.
 - Frequent changes in posture and position beforehand can prevent worsening.

Q&A session

Questions we have already received

Is it known what triggers restlessness in the brain?

- No → exact mechanisms are not known.
- However, wakefulness is a prerequisite for restlessness, and it is known that motor control centers in the brain are involved.
- Children have individual triggers for restlessness; avoidance of these triggers, e.g. noisy surroundings can prevent restlessness → it is important to **get the child out of the overstimulation state at an early stage**

Q&A session

Questions about the presented score for restlessness I

Which “states” of the child should be recorded for the restlessness study?

- All, that means not just severe restlessness, but everything - from distressed, fidgety to calm → the aim is to achieve comparability of the states.
- Children should not be “squeezed” into the score, but the score should reflect and classify the actual restlessness of the children.
- If you are unsure whether it is a seizure or restlessness, these sequences can also be recorded on video.
- Non-distressing restlessness can also occur in children with PCH2, so it can also count as restlessness, for example, if the child is lying on the crawling mat and moving around in a good mood - these phases should also be recorded on video.
- Recording all these “states” is important for the use of medication later on.

Q&A session

Questions about the presented score for restlessness II

How can I tell whether my child is extremely restless or having a seizure?

- In general, many families initially have problems distinguishing between these conditions. Over time, however, it is usually easy to recognize whether it is a seizure or restlessness.
- Restlessness tends to manifest itself as follows: the child is **awake, agonized and restless all over the body**.
- A seizure is more likely to manifest itself as follows: the child's **eyes are usually open**, it shows **stereotypical movements** and is **uniform over time**, trembling is sometimes only **localized**, e.g. on one arm, and can be associated with a turn of the gaze; in addition, seizures are usually **limited in time**.
- Note: restlessness can be triggered by seizures.

Q&A session

Trigger for restlessness

What triggers restlessness?

- Triggers vary from child to child.
- Often internal reasons, e.g. pain or meteorism.
- Seizures can also trigger restlessness.
- Positive emotions can also be a trigger for restlessness.

Q&A session

Medication for restlessness

What medication can I give my child for restlessness?

- **Clonazepam** helps if given several times a day but exacerbates problems with mucus in the airways → it can be difficult to find the right balance.
- **Gabapentin**; note: younger children (<5 years) need higher doses of gabapentin due to enzymatic processes (altered pharmacokinetics); if gabapentin is given regularly, additional doses may be helpful during periods of restlessness.
- **Clonidine** may be an option.

Q&A session

Notes and ideas on the restlessness study

- There is a movement analysis model for healthy people made available from the Max-Planck-Institute, but its applicability to children with PCH2 is still unclear.
- AI-based pattern recognition could possibly be useful.

Q&A session

Febrile seizures vs. epilepsy in PCH2

How do febrile seizures manifest in PCH2 and what can I do about them?

- Febrile seizures **last longer on average** in children with PCH2 than in otherwise healthy children and are more likely to progress to **status epilepticus**.
- A status epilepticus should be interrupted with medication, e.g. **midazolam** → it is good to have this at home as an emergency medication.
- A single febrile seizure is not directly classified as epilepsy.
- It usually takes several years for a child with PCH2 to develop epilepsy with epileptic activities visible on the EEG.