

Neuroirritabilität

Education Day

DKST 16. März 2017

Carola Hasan und Uta Münstermann



Kinder mit schwerer neurologischer Beeinträchtigung

Schmerz & Unruhe unklarer Ursache

Zentraler Schmerz

Nozizeptiver oder/und Neuropathischer Schmerz

Agitation

Distress

Dysautonomie



Neuro- Irritabilität

+ gestörter Schlaf- Wachrhythmus



Keine Symptombenennung und Definition...

Kinder mit schwerer neurologischer Beeinträchtigung

Schmerz- und **Unruhe**attacken

- Bewegungsunruhe
- Agitiertheit
- Spastik, Opisthotonus
- Schreien, Stöhnen, Weinen

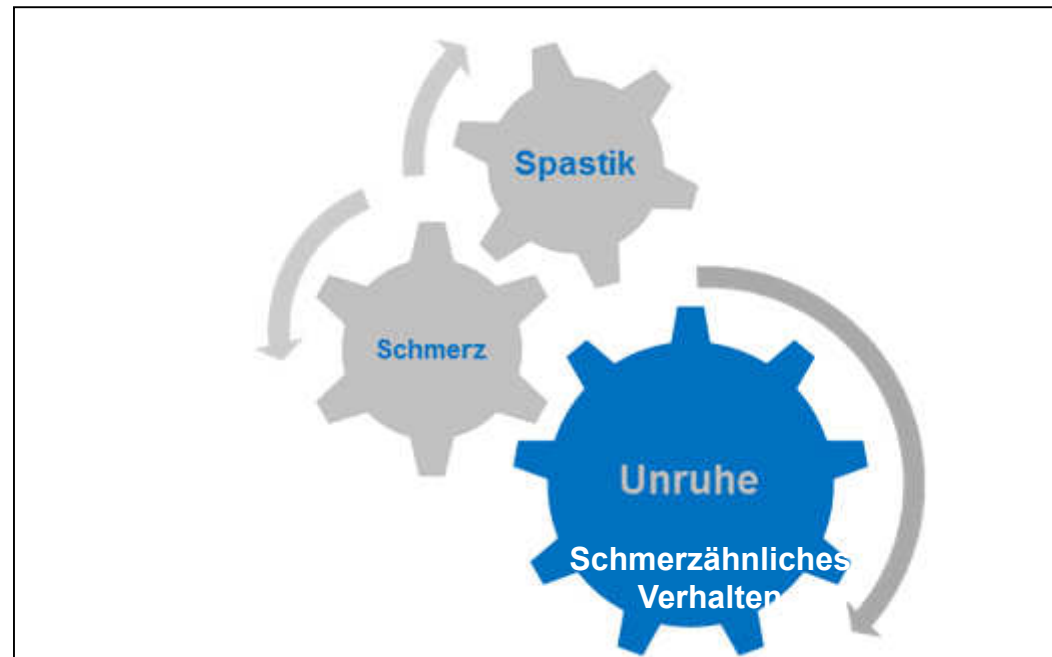
- Hypersalivation
- Tachykardie, Tachypnoe
- Erhöhte Körpertemperatur
- Schwitzen

- **nicht beeinflussbar**

- **maximal leidvoll**

Allgemeine Empfehlungen

- Klärung: → Progress der KH
→ Neue physische oder psychische Ursachen
- Entscheidung → was soll behandelt werden?
Schmerz kann Ursache oder Folge (Spastik) sein



Lisa Ann
Rasmussen
(Neuropädiatrie)

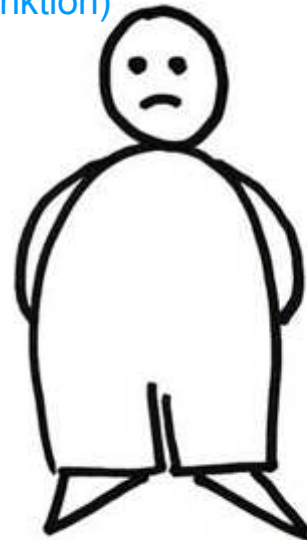
„Challenging neurological symptoms in paediatric palliative care: An approach to symptom evaluation and management in children with neurological impairment“

Paediatr Child Health 20 (3) 2015

Allgemeine Empfehlungen

- Schmerz → Ursachen aufdecken hat oberste Priorität

Kopfschmerzen (Shunt Dysfunktion)
Zahnschmerzen
Gingivitis
Otitis
Kornea Verletzung



GÖR
Obstipation
Nahrungsmittelintoleranz
Gallensteine

Entzündungen
Muskuläre Spastik
Kontrakturen
Skoliose
Hüftluxation
Osteoporose

HWI
Nierensteine

- Gleichermaßen anstrengend für Patienten, Eltern und Versorgende

Lisa Ann
Rasmussen
(Neuropädiatrie)

„Challenging
neurological
symptoms in
paediatric palliative
care: An approach
to symptom
evaluation and
management in
children with
neurological
impairment“

Paediatr Child
Health 20 (3) 2015

Therapieempfehlungen

Nicht-pharmakologische Interventionen

- Umgebungsfaktoren (Begrenzte Besucherzahl, ruhige Umgebung)
- Beruhigende Angebote (Musik, Vorlesen)
- Therapien (Psycho-, Spiel- und Musiktherapie)

Pharmakologische Interventionen

1. Gabapentin - *Neuropathische Schmerzen*
2. Clonidin - *Dysautonomie*
3. Benzodiazepine - *Bedarfsmedikation*
4. Haloperidol

Lisa Ann
Rasmussen
(Neuropädiatrie)

„Challenging
neurological
symptoms in
paediatric palliative
care: An approach
to symptom
evaluation and
management in
children with
neurological
impairment“

Paediatr Child
Health 20 (3) 2015



Therapieempfehlungen – PIUO (pain and irritability of unknown origin)

Harold Siden
(Pädiater,
Forscher)

„Physician
variability in
treating pain and
irritability of
unknown origin in
children with
severe neurological
impairment“

Pain Res Manag
18 (5) 2013

You are presented with a child with a genetic and neurological condition who is displaying “pain-like” behavior. The child is nonverbal and cannot localize the pain. You are unable to provide a reliable signal as to the degree of discomfort. Behaviors that are pain-like include vocalizations with crying, grimacing, wrinkling the forehead. There are tears on the face. There is arching and stiffening, especially of the back. These episodes are not predictable, can last for up to 1 hour, and will disrupt sleep.

Having initiated and completed an extensive workup, you are unable to determine an obvious or treatable cause of the pain-like behaviour. The workup, which reveals no specific pattern, does not identify a cause; the child has not had a seizure recently. Spasticity has not increased and the child is not on any antiepileptic drugs. A gastrostomy tube has been reviewed. Gastrostomy feeds are being treated. A urinalysis is normal. X-rays are normal and unchanged. An abdominal ultrasound is not performed. Treatment with acetaminophen, ibuprofen, positioning and cuddling has not made a difference.

You are left to consider either a nociceptive/inflammatory cause for this pain which you cannot identify, or with a case of CNS “irritability” (which may also be called neuropathic pain, central pain, or neuro-irritability).

Kasuistik

- Genetische oder metabolische oder neurologische Erkrankung
- Schmerzhaftes Verhalten (schreien, grimassieren, überstrecken, sich versteifen)
- Situationen nicht vorhersehbar, wenige Minuten bis 30'; Schlafstörungen
- Keine verbale Kommunikation
- Keine nozizeptive oder entzündliche Ursache
- Anamnese ohne spezifische Hinweise
- Spastik besteht, aber nicht verstärkt (Baclofen)
- Hilfsmittel kontrolliert
- PEG-Ernährung toleriert
- Obstipation behandelt
- Kein HWI
- Rö-Hüfte, - WS; Sono – Abdomen – ohne Befund
- Lagerung, Kuscheln - dito
- Paracetamol, Ibuprofen – nicht effektiv

Therapieempfehlungen – PIUO (pain and irritability of unknown origin)

Physician drug sequence response to case vignette

Physician	First drug	Second drug	Third drug	Fourth drug	Fifth drug	Sixth drug
A1	Opioid	Benzodiazepene	Methadone	Gabapentin	Tricyclic antidepressant	
A2	Opioid	Gabapentin	Tricyclic antidepressant	Selective serotonin reuptake inhibitor	Atypical antipsychotic	
A3	Opioid	Tricyclic antidepressant	Benzodiazepene	Atypical antipsychotic	Methadone	
B	Atypical antipsychotic	Gabapentin	Benzodiazepene	Tramadol	Opioid	
C	Gabapentin	Tricyclic antidepressant	Atypical antipsychotic	Benzodiazepene	Tramadol	Opioid
D	Gabapentin	Opioid	Atypical antipsychotic	Benzodiazepene	Methadone	
E	Benzodiazepene	Gabapentin	Atypical antipsychotic	Opioid		
F	Benzodiazepene	Opioid	Atypical antipsychotic	Methadone	Gabapentin	

Harold Siden
(Pädiater,
Forscher)

„Physician variability in treating pain and irritability of unknown origin in children with severe neurological impairment“

Pain Res Manag
18 (5) 2013

5 Ärzte → 8 Medikamentenklassen

8x Opioid
7x Benzodiazepin
7x Gabapentin

7x Atypische Neuroleptika

4x Methadon
4x Trizyklische Antidepressiva
2x Tramadol

1x Selektiver Serotonin re-uptake Inhibitor

Diagnostik – PIUO (pain and irritability of unknown origin)

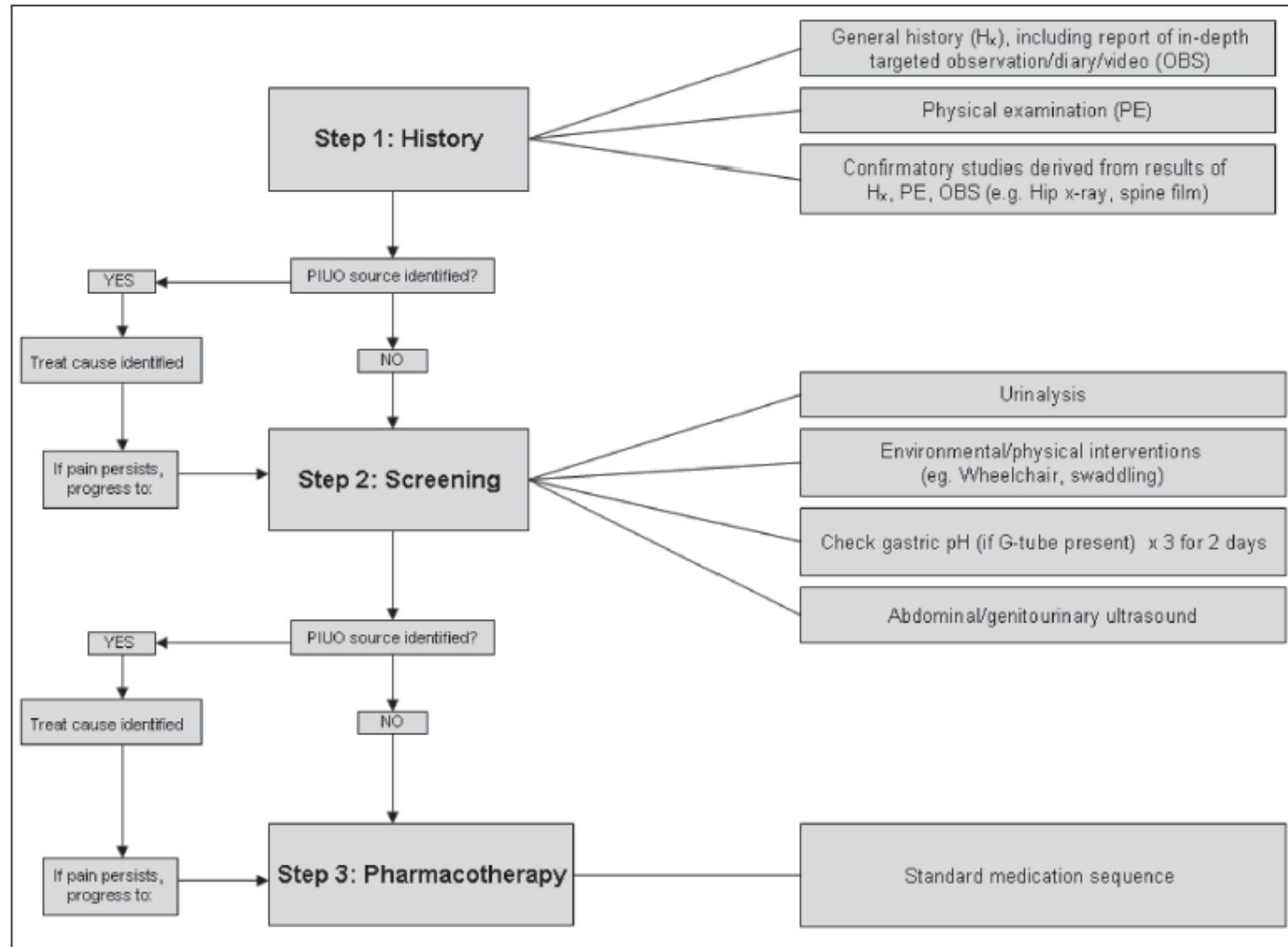


Figure 1) Pathway for unknown pain. G-tube Gastrostomy tube; PIUO Pain and irritability of unknown origin

Harold Siden
(Pädiater,
Forscher)

„Physician variability in treating pain and irritability of unknown origin in children with severe neurological impairment“

Pain Res Manag
18 (5) 2013

Therapieempfehlung – retrospektive Analyse

Rezidivierend schmerzhaftes Verhalten

- 22 Patienten mit Hirnschädigung im Kindesalter
 - Hypoxische oder traumatische Hirnschädigung
 - ZNS-Fehlbildungen, Genetische Erkrankungen
 - Rett-Syndrom, Neurodegenerative Erkrankungen

<i>Characteristics</i>	<i>(n = 22)</i>
Mean age	11.4 years
Gender	13 males (59%)
AED use	17 (77%)
Benzodiazepine use	16 (73%)
Baclofen use	11 (50%)
Dantrolene use	1 (4%)
Combined (baclofen, benzodiazepine, and/or dantrolene use)	20 (91%)
PPI and/or H2-blocker	22 (100%)

AED, antiepileptic drug; H, histamine; PPI, proton pump inhibitor.

Juli M. Hauer
(Pädiaterin)

„Gabapentin for
Management of
Recurrent Pain in
22 Nonverbal
Children with
Severe
Neurological
Impairment: A
Retrospective
Analysis“

J Palliative Med
18 (5) 2015

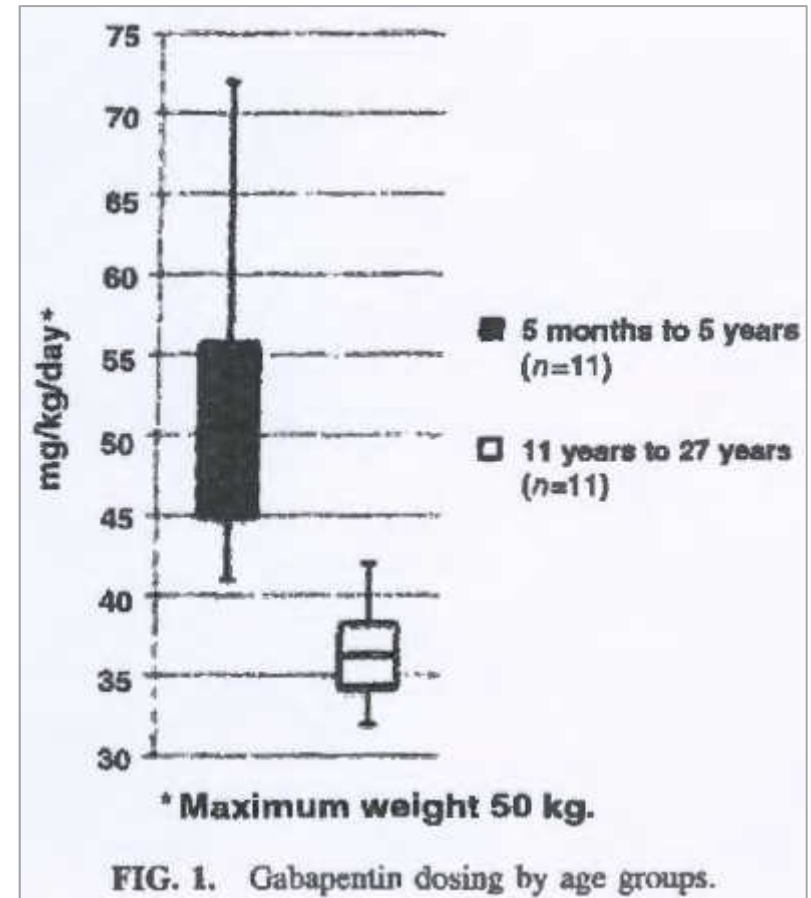
Therapieempfehlung – retrospektive Analyse

Fazit: Neuropathische Schmerzen – mögliche Schmerzursache

- Gabapentin – Startdosis:
5 – 6 mg/die in 3 ED
(Max. kalkuliertes Gewicht: 50 kg)
- Dosis – Steigerung:
2 – 3 Tage
- Max. Dosis:
72 mg/kg/die
- Enddosis:
Signifikante Reduktion
Schmerzstärke und -häufigkeit
(> 50% Erfolg – mind. 2 Schwestern)

→ 21 Patienten – Therapieerfolg
(Patient zykl. Schmerzen erst nach Venlafaxin)

→ Keine ernsthaften NW



Juli M. Hauer
(Pädiaterin)

„Gabapentin for
Management of
Recurrent Pain in
22 Nonverbal
Children with
Severe
Neurological
Impairment: A
Retrospective
Analysis“

J Palliative Med
18 (5) 2015



Pain and irritability of unknown origin (PIUO)

1. Definition
2. Messinstrument
3. Interventionsstudien

Fehlt etwas?

