Prehospital Provider Attitudes and Beliefs Regarding Pediatric Seizure Management: A Multicenter, Qualitative Study


The Charlotte1, Houston2,3, and Milwaukee4,5 Prehospital (CHaMP) Research Node

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Disclosures

I have no disclosures to report
Background

Pediatric seizures are common in EMS
Morbidity/mortality
Variability in care
Prehospital evidence-based guidelines (EBGs)

Chief Complaint of Pediatric EMS Transports¹


Pediatric Prehospital Evidence Based Guideline

Seizure Protocols

Recommendations

- Intramuscular (IM) and Intranasal (IN) routes are preferred over IV or rectal routes
- Placing an IV immediately is unnecessary
- Prehospital providers can give 2 doses of benzos prior to contacting online medical control
- Blood glucose should be checked
Objective
To identify prehospital provider attitudes and beliefs regarding enablers and barriers to adherence to an evidence-based seizure protocol

Methods
- Qualitative study
- Semi-structured interviews of paramedics in 3 EMS systems
- October 2016 to December 2017

Methods: Population
- Inclusion Criteria
  - Paramedics who recently (within 2 weeks) transported an actively seizing pediatric patient (age 0-17)
- Three large, urban EMS systems
Methods: Data Collection

- 20-30 minute interviews:
  - Semi-structured interview guide
  - Open ended questions
  - 1-on-1 interviews, either paramedic or medical director
- Content
  - Recent case
  - Pediatric seizure management
  - Protocol
- Audio recorded and transcribed

Methods: Qualitative Analysis

- Paramedics
  - Purposeful Sampling
  - Data Collection
  - Analysis
  - Thematic Saturation
    - Themes
      - Attitudes + Beliefs
      - Enablers and Barriers

Results

- 30 semi-structured interviews
- Thematic saturation was reached
- Demographics
  - Mean age: 34
  - 87% male
  - Mean of 10 years of EMS experience, 7 with current EMS agency
Enablers to Protocol Adherence

点-of-care references

Clearly defined ALS/BLS roles

Online medical control

Availability of multiple routes

Perception that IM and IN routes > IV

Results
Enablers to Protocol Adherence

- Clearly defined ALS/BLS roles
- Online medical control
- Availability of multiple routes
- Perception that IM and IN routes > IV

Results

- Provider-Level
- Systems-Level

"Placing an IV" would take too much time, and there was a chance of getting injured."

"When the patient is seizing, and he is seizing hard, it is going to be hard for me to control the site to give him the IV. So it can cause more injury to the patients."
Results

"Establishing an IV takes time, and sometimes you’re not even able to get it."

Provider-Level Barriers

"If you take it IM, you might lose some in that fatty tissue. So I prefer IV just because of the full dose, whatever you give, that’s what they’re going to receive. And it’s the fastest acting."
Provider-Level Barriers

“Usually [febrile seizures] stop on their own, and that’s passed down to every paramedic that I’ve known. You’re taught you’ve got to let them have the seizure.”

Provider-Level Barriers

“We could have pulled the [length-based] tape and estimated, but I generally think that the mother is going to be more knowledgeable.”

Provider-Level Barriers

“Midazolam is like I said, it’s a drug that you don’t want to give too much of. So we try just to be a little more delicate with our dosing.”
Results

Barriers to Protocol Adherence

Provider-Level Barriers

Environmental/Patient Barriers

Systems Barriers

Paramedic Solutions

Environmental/Patient Barriers

Results

Barriers to Protocol Adherence

Provider-Level Barriers

Environmental/Patient Barriers

Systems Barriers

Paramedic Solutions
Results

Systems Barriers

- Equipment barriers
- Controlled substance management
- Protocol ambiguity
- Lack of pediatric training

Systems Barriers: Equipment

The hassle that paramedics have to go through, and I mean... the Fire Department... are firing people over these medications... over you not signing one piece of paper or you not turning in a form.
“We had two different dosages, one for IM, and one for IV, and occasionally I get them confused.”

“I feel like there’s a lot of ambiguity associated with why we treat some seizures, but not all seizures, with anticonvulsants.”

“I would still treat a focal seizure with medication if it’s still an ongoing seizure. “During …some focal seizure, hand shaking, facial shaking, I don’t consider [midazolam].”
Systems Barriers: Lack of Pediatric Training

“You memorize it, but you don’t deal with it every day like you do adults.”

“We need to get more EMS training.”

Results

Provider-Level Barriers
Environmental/Patient Barriers
Systems Barriers

Paramedic Solutions

- Simplify dosing among all routes of midazolam
- Clarify the pediatric maximum dose of midazolam for each route
- Clarify definition of seizure, specifically addressing less common presentations such as abnormal gaze, rigidity, focality, and multiple brief seizures
- Clarify treatment of clearly focal seizure
Paramedic Solutions

- Carry supply of all necessary pediatric equipment, especially for small infants
- Decrease liability and paperwork associated with use of midazolam
- Provide more pediatric training

Limitations

- 3 large, urban based systems
- Generalizability

Conclusion

Enablers to Protocol Adherence

System-Level

Provider-Level

Provider-Level Barriers

Environmental/Patient Barriers

Systems Barriers

- Clearly defined ALS/BLS roles
- Online medical control
- Availability of multiple routes
- Perception that IM and IN routes > IV

Barriers

Protocol Adherence
Conclusions

- Next Steps:
  - Use findings to draft new protocols and measure outcomes before and after implementation of new protocols
  - Use findings to improve EMS system policies

For More Information

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